



SURVEY OF INDIA



# LEVELLING OF PRECISION IN INDIA

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## HEIGHTS OF BENCH MARKS

IN 1/MILLION SHEET

### No. 40 (HYDERABAD, SIND)

CORRECTED TO 1934

LATITUDE	...	...	24°-28° N.
LONGITUDE	...	...	68°-72° E.

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## INTRODUCTION

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Between 1858 and 1909 the Survey of India completed a system of lines of levelling known as the first levelling net. In 1909 the closing errors of the various circuits were distributed by a simultaneous adjustment, by which all discrepancies were removed and the whole net work was brought into terms of the Mean Sea-Level at nine tidal observatories on the coasts of India. The lines which entered into this adjustment are known as Main-lines and are numbered from 1 to 86. Certain other lines which were observed with similar accuracy, but which did not enter into the simultaneous adjustment are known as Branch-lines, and are designated by numbers and letters, e.g. 61 F. The branch-lines have been adjusted on to the main-lines with which they are connected. All the lines of the first level net, and a few lines observed between 1909 and 1921, were observed on the system known as "Simultaneous Double Levelling of Precision", in which two levellers work together, the second following a short distance behind the first.

The second levelling net was begun in 1914. In general its lines do not follow those of the first net, but intersect them and fill the gaps between them. It is being observed in accordance with the International Standard of "High Precision", in which the line is observed by two independent levellers, working in opposite directions. The accuracy of these lines is expected to be rather greater than that of the first net, but not so much so that the former can be considered at all obsolete. To avoid the confusion which would result from giving inconsistent values to closely adjacent bench marks, the lines of the new net are being adjusted to those of the old net, between all common points. In about 1950 when the second net will be completed, a second adjustment will be made, but it is unlikely that the adjusted values will differ seriously from those now being published, and it is probable that, except for scientific purposes, the values now given will be retained indefinitely. The main-lines of the second net have been given serial numbers, commencing at 101. In a few cases in which the lines had been observed before the arrangement of the second net had been finally decided, numbers were allotted as for branch-lines of the first net, e.g. 57 E.

The levelling referred to above is known as primary levelling. In addition, many lines of secondary precision are also being observed, generally in connection with engineering works. The system is similar to that of the old "Simultaneous Double Levelling of Precision" with very slightly relaxed standards, and the work may be considered to contain no errors of significance to engineers. This is called "Secondary levelling of Precision". Secondary lines are included in this series of pamphlets when they are of general interest: if they are of local interest only, as for example, a close net-work in connection with some engineering project, they are published in separate pamphlets. Their existence (if any) is indicated on the chart at the end of this pamphlet. They receive numbers as for branch-lines, e.g. 40 A, and are adjusted on to the primary lines.

A close net-work of tertiary levelling of lower accuracy has been carried out in some areas where required for special purposes. The data are not published, but can be obtained by special application. The existence of such work (if any) is indicated on the chart at the end of this pamphlet.

The chart at the beginning of this pamphlet shows the lines of the first net, the completed and projected lines of the second net, and the secondary lines of general interest which are to be included in this series of pamphlets.

Each pamphlet of this series contains the data of an area covering 4 degrees of latitude and 4 degrees of longitude, and is known by a number, and the name of the principal town in the area, e.g. Sheet No. 44 (Lahore). Internally each pamphlet is divided into 16 degree squares, corresponding to the degree sheets of the  $\frac{1}{4}$ -inch map. The degree sheets are lettered from A to P as shown on the chart at the end of the pamphlet, and are known by the combined number and letter, e.g. 44 E. The bench marks have been numbered according to the degree sheets in which they fall, the numbering in each sheet being quite independent of that in the surrounding sheets. Consequently, when a line passes from one degree sheet to another, the consecutive numbering of the bench marks on the line is broken. To indicate a particular bench mark, therefore, it is necessary to give its number and the degree sheet in which it falls, e.g. bench mark number 85 in degree sheet 53 B, written B.M. 85/53 B. In the body of pamphlet the full designation of each bench mark has been replaced by its serial number only: thus in the list of bench marks falling in degree sheet 53 B the number 85 indicates B.M. 85/53 B. A number once having been allotted to a bench mark will never be changed, unless the bench mark is disturbed: if on releveling it is found to have been disturbed, its old height and number are cancelled, and a new height and number allotted. It will be remarked that the numbers of bench marks are not always consecutive; the reason is that a certain number of bench marks which appear in G. T. S. Vols. XIX A and XIX B and the first editions of this pamphlet have subsequently been disturbed or destroyed, and are, therefore, omitted from this publication, while a number of bench marks, not occurring in the previous editions, have since been fixed by revisionary or new levelling, and are included in it.

When a line is re-observed the levels of some of the bench marks are found to be altered. A bench mark thus altered loses its identity considered as a datum of height. A new number is accordingly assigned to it, but for convenience the old number is written below in italics between brackets, e.g. 71, 72, 73. When this double numbering is met with,  $\begin{smallmatrix} (20) & (21) & (22) \end{smallmatrix}$  it is an indication that the height of the bench mark has changed from its original value, although it may appear to be intact.

A certain number of the bench marks (about 2,000 in all India) have been selected for permanent preservation at the expense of the Survey of India. They are known as Primary Protected Bench marks (P.P.B.M.) and are designated by the letter (PP) after or below their serial numbers. The Survey of India is always ready to receive reports of the condition of all bench marks, and to record their destruction in later editions of these pamphlets, but the upkeep of all except the PP B.M. lies in the hands of local authorities.

In the chart at the end of this pamphlet the lines of levelling are shown in green. Additional heights in the sheet, determined trigonometrically, are shown thus:  $\triangle_{1570}$ . They are merely meant to show the general lie of the country. If further information is required about them it will be found in the Triangulation pamphlet of the degree sheet in which they fall. It is not possible to enter all the bench marks in the chart: only selected ones are shown, including all Primary Protected Bench marks, and terminal bench marks where a line crosses into another sheet.

When fresh levelling is carried out it is published in the form of addenda to these pamphlets. The addenda are incorporated in the main pamphlets as soon as new editions provide opportunities.

The bench marks ordinarily used are of seven classes: Standard (2 kinds), Interred (2 kinds), Rock-cut (protected), Embedded, and Inscribed.

**Standard Bench marks (Major and Minor Types):** Standard bench marks are only erected in important towns where arrangements for their preservation can be made



The lines of levelling dealt with in this Pamphlet, with the dates of their execution, are given below:—

1. Main-Line 53 (Shikārpur to Tatta) ... Observed in 1858-59-60.  
Portion between Shikārpur and Sehwan is not revised; along the *kachcha* road and cross country via Jalbāni to Sehwan.
2. Main-Line 54 (Shikārpur to Murghai) ... Observed in 1858-59.  
Partly along the cross country and partly along the road via Kashmir.

3. Main-Line 101 (Karāchi to Khānpur) ... Observed in { 1920-21.  
1921-22-23.  
1924-25-26.

Section Karāchi-Kotri: comprises old lines 43 and 53 originally observed in 1859-60 and 1893-94, and 1858-59 severally, revised in 1924-25-26: along the road via Tatta and Jerruck.

Section Hyderabad & Kotri-Jacobābād: comprises part of old line 53 originally observed in 1858-59-60, revised in 1920-21: partly along railway line, road and partly along cross country, via Sehwan, Ohini, Mehar, Kambar and Ghaili Dero to Jacobābād. It includes check-levelling between Hyderabad and Kotri. Section Jacobābād-Khānpur: comprises parts of old lines 54 A, 52 and 57 C originally observed in 1910-11 & 1913-14, 1904-05-06 and 1909-10 severally, revised in 1921-22-23: along the railway line via Shikārpur, Rohri and Rahim-yār Khān to Khānpur.

4. Branch-Line 101 A (Sukkur to Hyderabad) ... Observed in { 1924-25.  
1927-28-29.

It is coincident with part of Main-Line 52 (Sujāwal to Shikārpur) observed in 1901-03-06; Section Sukkur-Bāndhi revised in 1924-25 and 1927-28 and Section Bāndhi-Hyderabad in 1927-28-29: along the railway line via Rohri, Khairpur, Bāndhi, Nawābshāh and Oderolal.

N.B. This line was originally intended to be included in the new level net and therefore observed by the method of High Precision levelling, but owing to the wide discrepancies between old and new levelling and the discordant results obtained by different levellers, it has been excluded from the new level net and is now considered as secondary levelling.

5. Main-Line 52 (Sujāwal to Shikārpur) ... Observed in 1904-05-06.  
Portion between Sujāwal and Hyderabad is not revised; along the road up to Tando Muhammad Khān and thence along the railway line to Hyderabad.
6. Main-Line 150 (Kotri to Barmer) ... Observed in 1924-25-26.  
Along the railway line via Mīnpur Khās, Chhor and Gadra Road.

7. Main-Line 44 (Navānar to Sujāwal) ... Observed in 1889-90.  
Along the road via Moghal Bhin (see line 104 below).  
The portion between Bahar and Nakhtarāna Mota is not revised owing to flood area.

8. Main-Line 104 (Virangām to Tatta) ... Observed in { 1921-22.  
1923-24.  
1926-27-28.

Section Virangām-Nakhtarāna Mota: comprises old lines (49, 48), (47, 46) and 14 originally observed in 1875-76, 1874-75 and 1889-90 severally, revised in

1921-22 and 1923-24; along the railway line to Wadhwan; thence along the road via Rajkot, Jodiya, Shikarpur, Anjar, Mundra and Bhuj to Nakhtarana Mota. Section Buhar-Tatta: comprises old lines 44 and 45 originally observed in 1889-90, revised in 1926-27-28; along the road via Sujawal.

N.B. The portion between Nakhtarana Mota and Buhar has not yet been revised.

9. Main-Line 102 (Khampur to Marwar Pali) .. Observed in 1921-22 & 1923-24. Along the foot-path via Islamabad to Jaisalmer; thence along cart road via Sheo to Barmer and thence along the railway line via Luni Junction to Pali.

Any person who discovers that a Survey bench mark has been disturbed, or that a description given in this book is no longer correct, is requested to inform the Director of the Geodetic Branch, Survey of India, Dehra Dun.









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Bench marks Nos.	497, 498, 219, 499-514, 78, 515-544, 52, 545, 157, 546, (225) 31, 159-161, 414, 156, 154, 217, 33, 416-419 & 152 on (156) Line 101 A (Sukkur to Hyderābād) ... ..	Pages	45-54
Bench marks Nos.	210, 211, 412, 34, 413, 33, 217, 161, 414, 156, 154, 415- (216) (155) 419, 152, 420, 421-423, 424, 425-444, 234, 233, 445-447, (27) (398) (231) 448-450, 451, 452-455, 456-459, 460-463, 464 & 465 on (230) (229) (228) (227) (226) Line 150 (Kotri to Barmer) ... ..	Pages	55-63

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Bench marks Nos.	103-108, 110-113 & 115 on Line 101 (Karāchi to Khān- pur) ... ..	Pages	68-70
Bench marks Nos.	4, 116-118, 119-124, 12, 125-127, 16, 128, 129, 21, 130, (5) (20) 131, 132, 133, 134, 29, 135, 136, 34, 137 & 138-145 on (23) (24) (28) (33) Line 104 (Viramgām to Tatta) ... ..	Pages	70-75

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	(4) (2) (1)		

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## LEVELLING OF PRECISION IN INDIA

## Bench marks falling in Degree Sheet 40 A

Number in Sheet 40 A	Distance from preceding F.M., unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<b>Main-Line 53 (Shikarpur to Tatta)</b> [ Section Shikarpur-Sehwan not revised in 1921-23 in Main-Line 101 ].	feet
85* PP	12.77	On ground level mark-stone of Jalbāni G. T. Survey Tower Station, lat. $27^{\circ} 40' 6'' \cdot 09$ , long. $68^{\circ} 18' 59'' \cdot 05$ . This is a geodetic station of the Great Indus series and is situated in the Rathe Dera <i>kārdāri</i> , district Shikarpur, Upper Sind. The small village of Mohamed Khān, inhabited by a sect called Jalbāni, is distant only about 300 yards N. The pillar is perforated, and 40.36 feet in height above the mark-stone at ground level.	165.532
86* PP	11.53	On ground level mark-stone of Chāndia-Khān G. T. Survey Tower Station, lat. $27^{\circ} 42' 16'' \cdot 21$ , long. $68^{\circ} 5' 31'' \cdot 50$ . This is a geodetic station of the Great Indus series and is situated in the <i>laypa</i> of Mahin, <i>kārdāri</i> Kambar. The small village of Chāndia-Khān Doib is about 300 yards to the NE. The pillar is perforated, and 30.08 feet in height above the mark-stone at ground level.	155.121
		<b>Main-Line 54 (Shikarpur to Murghai)</b>	
283 (79)	0.00	Iron plug driven horizontally into N. wall of Shikarpur <i>kachakri</i> , see page 1.	193.649 8
87† PP	6.71	On upper mark-stone of Hatidara G. T. Survey Tower Station, lat. $27^{\circ} 59' 2'' \cdot 16$ , long. $68^{\circ} 41' 55'' \cdot 65$ . This is a geodetic station of the Great Indus series and is situated in the <i>kārdāri</i> and district of Shikarpur, Upper Sind, on a sand hill of that name, elevated about 15 or 16 feet above the level of the surrounding ground. The village of Khānpur is about $1\frac{1}{4}$ miles NW. The pillar is solid, and 19.3 feet high. It has a mark-stone on its upper surface.	234.540

‡ Revised value from the levelling of 1921-23.

\* Reported not traceable or missing in 1925.

† Reported mark-stone not found in 1928.

Bench marks falling in Degree Sheet 40 A

Number in Sheet 40 A	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<b>Main-Line 101 (Karachi to Khanpur).</b> [Section Kotri-Jacobabad revised in 1920-21].  <i>Note: Bench mark No. 104 was reported destroyed in 1930.</i>	feet
103	0.97 [from B.M. 30/35M]	G.T.S. O B.M. on brick flooring of S. veranda, between two doors of the district bungalow, Kambar.	156.121
102	0.01	G.T.S. O B.M. 1920 (Musto's Type) at Kambar district bungalow. Embedded at NW. corner of the compound-wall of the bungalow. The stone projects about 1 foot above ground level. The distances and bearings of the surrounding objects are: NW. corner of the bungalow 68½ feet and 149½°; SW. corner of same 114 feet and 173½°; NE. corner of same 142 feet and 133°; NW. corner of kitchen in the compound 179 feet and 198°; SW. corner of same 242 feet and 201°.	153.627
		[Section Jacobabad-Khanpur revised in 1921-22-23, coincident with part of Branch-Line 54 A].	
89	2.39 [from B.M. 4/30D]	G.T.S. O B.M. on E. cap of S. abutment of bridge No. 45 over Raiswāh, between telegraph posts Nos. P30/12 and P30/11.	195.228 β
229	0.99	G.T.S. O B.M. on brick on SE. abutment, just below the SE. cap of bridge No. 35 between telegraph posts Nos. P29/13 and P29/12.	193.471
88	1.11	G.T.S. O B.M. on stone coping of platform, opposite main entrance and waiting hall, of Shikārpur railway station.	196.668 β
230 (76)	0.02	G.T.S. O B.M. on uppermost step at back or E. side of Shikārpur railway station, at plinth level, 3 feet from NE. corner of building and 12 feet from centre of central arched entrance to passengers' waiting hall.	197.224 δ
231 PR (78)	0.06	G.T.S. O B.M. A.D. 1905 (Type B) at Shikārpur railway station. Interred S. of station building outside platform enclosure, between railway line and road and 6 inches below ground level. The distances and bearings of the	191.993 δ

β Old value found correct in 1921-23.

δ Revised value from the levelling of 1921-23.

## LEVELLING OF PRECISION IN INDIA

## Bench marks falling in Degree Sheet 40 A

Number in Sheet 40 A	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 101 (Karachi to Khanpur).</b> <i>[Section Jacobabad-Khanpur revised in 1921-22-23].</i>	<i>feet</i>
231 PP (79)	(Contd.)	water-tank 72½ feet and 189°; NW. corner of railway servants' <i>pakka</i> quarters 154 feet and 77°; platform enclosure 37 feet SW. A rail-post with an iron plate bearing the inscription G.T.S. stands 5 feet SW. of the bench mark.	191·898 δ
75	0·36	G.T.S. on flooring of E. veranda of Government High O B.M. School, Shikārpur, 2 feet and 33 feet respectively from NW. and SE. corners of same and 10 feet from centre of E. door of main building.	192·743 β
232 (81)	1·24	G.T.S. on third step in front of W. door on N. side of the B M late Major Stewart's house, now known as Circuit house, to E. of sub-judge's court, Shikārpur.	193·164 δ
233 (79)	0·13	Iron plug driven horizontally into N. wall of Shikārpur <i>kachhri</i> , see page 1.	193·649 δ
80	0·08	G.T.S. at sub-judge's court, Shikārpur, on flooring of S. O B.M. veranda, 35 feet and 37 feet respectively from NW. and SW. corners of same, 5 feet from centre of second door from W. of main building and 10 inches from wall.  <i>[Section Jacobabad-Khanpur revised in 1921-22-23, coincident with part of Main-Line 52].</i>	193·400 β
77	0·32	G.T.S. on NW. cap of bridge No. 26 over Begāri canal, O B.M. between telegraph posts Nos. P27/9 and P27/8.	197·816 β
72	1·02	G.T.S. on NW. cap of N. abutment of bridge No. 22, O B.M. between telegraph posts Nos. P26/8 and P26/7.	201·045 β
234	1·19	G.T.S. on stone slab let into NW. cap of N. abutment of O B.M. bridge No. 20, between telegraph posts Nos. P25/6 and P25/5.	195·065
70	2·03	G.T.S. on stone slab let into NW. cap of N. abutment of O B.M. bridge No. 13A, between telegraph posts Nos. P23/6 and P23/5.	194·992 β

β Old value found correct in 1921-23

δ Revised value from the levelling of 1921-23.

Bench marks falling in Degree Sheet 40 A

Number in Sheet 40 A	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Lino 101 (Karachi to Khanpur). [Section Jacobabad-Khanpur revised in 1921-22-23].	feet
69	1.14	G.T.S. B.M. on stone slab let into NW. cap of N. abutment of bridge No. 11, between telegraph posts Nos. P22/5 and P22/4.	195.172 β
236 (68)	1.26	G.T.S. B.M. on stone slab let into NW. cap of N. abutment of bridge No. 4, between telegraph posts Nos. P21/2 and P21/1.	195.105 δ
238 (66)	2.49	G.T.S. B.M. on stone on E. cap of S. abutment of bridge No. 1 over Sukkurwāh, near telegraph post No. P18/10 and about $\frac{1}{4}$ mile E. of Ruk junction railway station.	199.923 δ
239 (64)	0.65	G.T.S. B.M. on stone slab let into S. cap of E. abutment of girder bridge No. 35, between telegraph posts Nos. 16/21 and 16/20.	198.258 δ
62	2.79	G.T.S. B.M. on stone slab let into S. parapet of culvert No. 314, between telegraph posts Nos. 14/3 and 14/2.	197.309 β
240 (61)	1.88	G.T.S. B.M. on concrete slab let into S. parapet of culvert, between telegraph posts Nos. 12/7 and 12/6.	197.154 δ
60	1.28	G.T.S. B.M. at Bāgarji railway station. Embedded in a block of masonry in the station platform with the upper surface of stone flush with the level of the platform. The distances and bearings of the surrounding objects are: NW. corner of the station building 108½ feet and 180°; NE. corner of station master's quarters 108 feet and 230°; edge of platform above rails 13½ feet NE.	199.145 β
241	0.07	G.T.S. B.M. on stone slab let into coping of platform opposite latrine No. 5, and 20 feet from the E. end of platform of Bāgarji railway station.	199.246
242	0.86	G.T.S. B.M. on stone slab let into S. end of W. parapet of culvert, between telegraph posts Nos. 10/2 and 10/1.	198.302
58	1.20	G.T.S. B.M. on concrete slab let into S. parapet of culvert No. 328, between telegraph posts Nos. 8/21 and 8/20.	199.504 β
243	1.33	G.T.S. B.M. on brick on S. parapet of W. abutment of bridge No. 332, between telegraph posts Nos. 7/13 and 7/12 and about 4 chains W. of gang-hut No. 7/11.	201.790

β Old value found correct in 1921-23.

δ Revised value from the levelling of 1921-23.

## LEVELLING OF PRECISION IN INDIA

## Bench marks falling in Degree Sheet 40 A

Number in Sheet 40 A	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 101 (Karachi to Khanpur). [Section Jacobabad-Khanpur revised in 1921-22-23].	feet
244 (57)	0.63	G.T.S. B.M. A.D. 1909 at Arain Road railway station. Embedded in a block of masonry 3½ feet cube W. of station and 6 inches below level of rails. The distances and bearings of the surrounding objects are: centre of rails 12 feet 6 inches N.; NW. corner of level-crossing gate-lodge No. 6/20, 120 feet E.; home lantern signal 79 feet and 93°; NW. corner of station building 72½ feet and 132°; telegraph post No. 6/21, 66 feet and 278°.	199.765 δ
245	0.02	G.T.S. B.M. on stone slab let into floor of Arain Road railway station veranda in the NE. corner near the rail-post.	200.081
246	0.03	G.T.S. B.M. on stone slab let into N. parapet of culvert No. 335, near telegraph post No. 6/20 and about 44 yards E. of level-crossing gate-lodge No. 6/20.	200.040
247	1.77	G.T.S. B.M. on brick on E. wing-wall of culvert, between telegraph posts Nos. 5/4 and 5/3.	200.472
98	1.85	G.T.S. B.M. (Type C) on rock in situ at foot of a small hill within military limits. The hill is about 44 yards to W. of main road to Shikarpur. The bench mark is to NE. of railway loco-stores building, Sukkur, SE. of Parsi cemetery, 5 feet S. of <sup>M.D.</sup> <sub>32</sub> B.P., 57 feet NW. <sup>M.D.</sup> <sub>33</sub> of B.P. and 44 feet from NW. corner of railway menials' quarters. It is protected by a hollow masonry pillar bearing the inscription <sup>G.T. Survey</sup> O, the height of which above the bench mark is 1.825 feet.	205.629 β
100pp	0.91	G.T.S. B.M. (Type C) on rock in situ, 10 feet E. of <sup>M.D.</sup> <sub>No. 252</sub> B.P. of King's hill-battery opposite Mir Masūm Shāh's minār (the most prominent and ancient pillar), Sukkur, about 1½ furlongs W. of same; the SE. corner of military building No. 34 is 360°; SW. corner of same 340°; Mir Masūm Shāh's	255.939 β

δ Old value found correct in 1921-23.

β Revised value from the levelling of 1921-23.

Bench marks falling in Degree Sheet 40 A

Number in Sheet 40 A	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 101 (Karachi to Khanpur). [Section Jacobabad-Khanpur revised in 1921-22-23].	feet
100 rr	(Contd.)	M.D. minor 101 <sup>1</sup> ; B.P. 188 feet E. The bench mark is protected by a hollow masonry pillar bearing the inscription <sup>G.T. Survey</sup> O Upper Mark the height of which above the bench mark is 1.576 feet. (Revised description).	255.939 β
249 (42)	0.27	G.T.S. O on flooring of S. veranda of travellers' bungalow, Sukkur, 28 feet from SW. corner of same, 1 foot from wall of building and 5 feet from centre of second door from W. or fourth from E.	241.084 δ
250 (43)	0.10	G.T.S. O on S. end of third stone step in front of E. entrance to N. wing of N. W. Railway Institute, Sukkur.	235.276 δ
50	0.38	G.T.S. O on N. end of W. parapet of road bridge, about 100 feet N. of Municipal office and Town Hall, Sukkur.	237.515 β
53	0.11	G.T.S. O on second stone step in front of main entrance to Church of England, Sukkur.	227.817 β
251	0.37	n.c.w. on stone on fourth step from bottom, at its N. end, of the flight of stairs leading to the municipal reservoir, Sukkur, and is about 5 chains W. of it.	218.830
101 rr	0.13	G.T.S. Standard Bench Mark 1007 at Sukkur. Consists of a stone monolith 2 feet square at base and 3 feet high, the upper 4 inches being dressed to the form of a frustum of a pyramid terminating in a square of 3-inch side. The stone rests on a bed of concrete 6½ feet square on rock foundation and is faced with masonry 5 feet square and 1½ feet deep, the upper surface of stone being 2 feet 5 inches above ground level. It is surrounded by wire-fencing and is situated on top of a hill between municipal reservoir (Sukkur Water Works) and the Circuit house. It is 204 feet from NE. corner of reservoir and 192 feet from NW. corner of the Circuit house.	254.703 β

<sup>1</sup> Old value found correct in 1921-23.

<sup>2</sup> Revised value from the levelling of 1921-23.



## LEVELLING OF PRECISION IN INDIA

## Bench marks falling in Degree Sheet 40 A

Number in Sheet 40 A	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 101 (Karachi to Khanpur).</b> <i>[Section Jacobabad-Khanpur revised in 1921-22-23].</i>	<i>feet</i>
252 (62)	0.95	G.T.S. on brick flooring of W. veranda of railway pay B.M. clerk's office, Sukkur, near NW. corner of main building.	199.494 8
253 (99)	0.04	G.T.S. on E. wheel-guard stone of steps on S. side of B.M. station master's office, W. of main entrance to Sukkur railway station.	199.221 8
47	0.09	G.T.S. on stone coping of platform in front of main en- B.M. trance at Sukkur railway station.	205.587 $\beta$
46	0.92	G.T.S. on SE. parapet of bridge No. 349, about 7½ fur- B.M. longs E. of Sukkur railway station.	220.977 $\beta$
254	0.26	G.T.S. at E. end of SE. parapet of bridge No. 354, between B.M. telegraph posts Nos. 1/13 and 1/12.	227.871
255	0.15	G.T.S. on projected plinth stone of first projection on the B.M. W. pier No. 355 on Sukkur side bridge (Lansdowne bridge) and about 44 yards E. of Sukkur Right Bank station building.	236.492
256	0.54	G.T.S. on stone at S. base of first projection on E. pier of B.M. Rohri bridge (Lansdowne bridge) adjoining the Rohri Left Bank station building.	241.161
257	0.80	G.T.S. on N. stone coping of island platform at Rohri B.M. junction railway station, 73 feet W. of NE. corner of station master's office on the platform and 14 feet N. of hydrant on the platform.	226.663
258 (44)	0.04	G.T.S. at Rohri junction railway station. Embedded in B.M. a block of masonry flush with the ground level at A.D. 1904 SW. extreme corner of the island platform. The distances and bearings of the are: centre of rails 10 feet SE.; SW. corn office on island platform 47 feet and 105°; W. home signal 114 feet and 282°.	223.498 8
97	1.67	<i>Note: From this point emanates a branch-line to the rock-cut protected bench mark on hill near tomb of Shāh Maksūd Pīr.</i> G.T.S. (Type C) on rock in situ, on E. slope of hill on top of B.M. which is the tomb of Shāh Maksūd Pīr. The hill is about 1 mile S. of Rohri junction railway station. The bearing from bench mark to	294.282 $\beta$

 $\beta$  Old value found correct in 1921-23.

8 Revised value from the levelling of 1921-23.

Bench marks falling in Degree Sheet 40 A

Number in Sheet 40 A	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 101 (Karachi to Khanpur).</b> <i>[Section Jacobabad-Khanpur revised in 1921-22-23].</i>	<i>feet</i>
(Contd.)		spire of dome of <i>masjid</i> (a little N. of Rohri junction railway station) is 14°. The bench mark is protected by a hollow masonry pillar bearing the inscription <sup>G.T. Survey</sup> <sup>O</sup> Upper Mark, the height of which above the bench mark is 2·241 feet.	294·282 β
		<i>Note: The branch-line ends here.</i>	
		<i>[Section Jacobabad-Khanpur revised in 1921-22-23, coincident with part of Branch-Line 57 C].</i>	
259	0·41 [from B.M. 258 (44)]	G.T.S. on stone on NE. abutment, at its middle, of bridge No. 189, between telegraph posts Nos. 298/18 and 298/19.	220·502
260 (95)	0·54	R.G. on top of stone pillar, on right bank of Garkha canal and about 8 chains NW. of railway line. (Irrigation bench mark).	206·846 δ
94	0·22	B. ↑ M. at centre of NW. parapet of bridge No. 192 over Nāra canal between telegraph posts Nos. 299/11 and 299/12. (Railway bench mark).	270·748 β
261	2·11	G.T.S. on stone on SE. parapet, at its middle, of bridge No. 192/A, between telegraph posts Nos. 301/12 and 301/13.	210·142
262 (93)	0·57	B. ↑ M. on parapet over NW. end of SW. abutment of bridge No. 195, between telegraph posts Nos. 302/2 and 302/3. (Railway bench mark).	207·817 δ
263 (92)	0·59	B. ↑ M. on parapet over NW. end of NE. abutment of bridge No. 197, between telegraph posts Nos. 302/16 and 302/17. (Railway bench mark).	208·320 δ
264 (91)	0·53	G.T.S. on stone coping of up-line platform opposite station building of Mando Dāiro railway station.	211·762 δ
265	0·47	G.T.S. on SE. cap of NE. abutment of girder bridge No. 198, between telegraph posts Nos. 303/16 and 303/17.	210·015
266 (90)	0·44	B. ↑ M. on parapet over NW. end of NE. abutment of bridge No. 199, between telegraph posts Nos. 304/3 and 304/4. (Railway bench mark).	210·418 δ

β Old value found correct in 1921-23.

δ Revised value from the levelling of 1921-23.

## Bench marks falling in Degree Sheet 40 A

Number in Sheet 40A	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Branch-Line 101A (Sukkur to Hyderabad).</b> <i>[Section Sukkur-Bandhi revised in 1924-25 and 1927-28, coincident with part of Main-Line 52].</i>	<i>feet</i>
100 pp	0.00	G.T.S. (Type C) on rock in situ, see pages 6 and 7. O B.M.	255.939 <sup>β</sup>
252 (62)	0.45	G.T.S. on brick flooring, see page 8. O B.M.	199.494 <sup>δ</sup>
253 (99)	0.06	G.T.S. on E. wheel-guard stone of steps, see page 8. O B.M.	199.221 <sup>δ</sup>
46	0.95	G.T.S. on SE. parapet of railway bridge No. 349, see O B.M. page 8.	220.977 <sup>β</sup>
254	0.26	G.T.S. at E. end of SE. parapet of bridge No. 354, see O B.M. page 8.	227.871 <sup>β</sup>
255	0.02	G.T.S. on projected plinth stone, see page 8. O B.M.	286.492 <sup>β</sup>
256	0.54	G.T.S. on stone, see page 8. O B.M.	241.161 <sup>β</sup>
257	0.90	G.T.S. on N. stone coping of island platform at Rohri O B.M. junction railway station, see page 8.	226.663 <sup>β</sup>
267	1.09	B.M. on brick on NW. coping of N. abutment, just G.T.S. below and to E. of NW. parapet of railway bridge No. 182, between telegraph posts Nos. 297/4 and 297/5 from Karāchi.	213.381
268 (43)	0.47	G.T.S. on stone slab fixed on W. parapet of railway bridge O B.M. No. 180, opposite telegraph post No. 296/22 and 380 yards N. of Rohri goods-yard A cabin.	201.183 <sup>β</sup>
269	2.83	G.T.S. on brick on W. parapet of railway culvert No. 172, O B.M. opposite telegraph post No. 294/14 from Karāchi.	194.660
270	1.54	G.T.S. on brick in the middle of W. parapet of railway O B.M. bridge No. 167, between telegraph posts Nos. 293/2 and 293/3 from Karāchi.	195.711

<sup>β</sup> Old value found correct in 1924-25 and 1927-28.

<sup>δ</sup> Revised value from the levelling of 1924-25 and 1927-28.

<sup>γ</sup> Revised value from the levelling of 1921-23, and 1924-25 & 1927-28.

Bench marks falling in Degree Sheet 40 A

Number in Sheet 40 A	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Branch-Line 101 A (Sukkur to Hyderabad).</b> <i>[ Section Sukkur-Bandhi revised in 1924-25 and 1927-28 ].</i>	<i>feet</i>
41	0.16	$\begin{smallmatrix} \circ \\ \text{B.M.} \end{smallmatrix}$ on stone slab fixed on W. parapet of railway bridge No. 166, opposite telegraph post No. 292/22 from Karāchi.	191.833 <sup>B</sup>
271	1.09	$\begin{smallmatrix} \circ \\ \text{G.T.S.} \\ \circ \\ \text{B.M.} \end{smallmatrix}$ on brick on W. parapet, at its N. end, of railway culvert No. 168, opposite telegraph post No. 291/21 from Karāchi.	192.752
272 (40)	0.86	$\begin{smallmatrix} \circ \\ \text{G.T.S.} \end{smallmatrix}$ on stone slab embedded in a masonry pillar flush with ground level, on W. side of the railway line and about 6 feet E. of mile-plate No. 291 from Karāchi.	191.881 <sup>B</sup>
273	0.84	$\begin{smallmatrix} \circ \\ \text{G.T.S.} \\ \circ \\ \text{B.M.} \end{smallmatrix}$ on brick flooring, against E. wall, of station building, about 2 feet N. of rest-room door of Begmānji railway station.	195.025
274	1.02	$\begin{smallmatrix} \circ \\ \text{G.T.S.} \\ \circ \\ \text{B.M.} \end{smallmatrix}$ on brick on W. parapet of railway culvert No. 154, between telegraph posts Nos. 289/4 and 289/5 from Karāchi.	189.618
		<i>Note: Bench mark No. 275 was reported destroyed in 1930.</i>	
276 (36)	2.16	$\begin{smallmatrix} \circ \\ \text{G.T.S.} \\ \circ \\ \text{B.M.} \end{smallmatrix}$ on stone slab embedded in a masonry pillar flush with ground level, 5½ feet SE. of mile-plate No. 287 from Karāchi on W. side of railway line.	191.808 <sup>B</sup>
34	4.14	$\begin{smallmatrix} \circ \\ \text{G.T.S.} \\ \circ \\ \text{B.M.} \end{smallmatrix}$ on stone slab let into brick on W. parapet, at its middle, of railway culvert No. 143 about 40 feet N. of level-crossing opposite telegraph post No. 282/21 from Karāchi.	185.471 <sup>B</sup>
		<i>Note: Bench mark No. 277 was reported destroyed in 1930.</i>	
278	2.73	$\begin{smallmatrix} \circ \\ \text{G.T.S.} \\ \circ \\ \text{B.M.} \end{smallmatrix}$ on brick on W. parapet of railway culvert No. 134, opposite telegraph post No. 280/5 from Karāchi and about 264 feet S. of level-crossing lodge No. 280/6.	180.998

<sup>B</sup> Old value found correct in 1924-25 and 1927-28.

<sup>3</sup> Revised value from the levelling of 1924-25 and 1927-28.

## Bench marks falling in Degree Sheet 40 A

Number in Sheet 40 A	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Branch-Line 101A (Sukkur to Hyderabad).</b> <i>[Section Sukkur-Bandhi revised in 1924-25 and 1927-28].</i>	<i>feet</i>
30	1.33	G.T.S. B.M. on stone slab let into W. parapet of railway culvert No. 127, between telegraph posts Nos. 278/20 and 278/19 from Karāchi.	177.754 β
279 (29)	1.86	G.T.S. B.M. on stone slab embedded in a block of masonry flush with ground level, about 5½ feet SE. of mile-plate No. 277 from Karāchi and about 10 feet W. of western line rails.	180.841 δ
28	2.01	G.T.S. B.M. on stone slab embedded in a block of masonry flush with ground level, about 5½ feet SE. of mile-plate No. 275 from Karāchi and about 10 feet W. of centre of western line rails.	179.863 β
280	0.86	G.T.S. B.M. on brick flooring against E. wall of station building of Tando Masti Khān railway station and about 4 feet S. of rest-room door.	182.225
281	1.20	G.T.S. B.M. on brick on W. parapet of railway culvert No. 121, between telegraph posts Nos. 272/24 and 272/23 from Karāchi.	176.087
282	1.93	G.T.S. B.M. on brick on W. parapet of railway culvert No. 117, between mile-plate No. 271, and telegraph post No. 271/1 from Karāchi.	178.850
283	1.10	BOM on brick on W. parapet of railway culvert No. 115, between telegraph posts Nos. 269/22 and 269/23 from Karāchi.	178.726
28	1.77	G.T.S. B.M. on stone slab fixed on W. parapet of railway culvert No. 113, at telegraph post No. 268/4 from Karāchi.	172.499 β
284 (22)	1.23	G.T.S. B.M. on stone slab let into SW. cap of S. abutment of railway bridge No. 111, opposite telegraph post No. 266/23 from Karāchi.	175.854 δ
285	1.16	G.T.S. B.M. on brick on W. parapet of railway culvert No. 110, opposite telegraph post No. 265/19 from Karāchi.	170.601

β Old value found correct in 1924-25 and 1927-28.

δ Revised value from the levelling of 1924-25 and 1927-28.

Bench marks falling in Degree Sheet 40 A

Number in Sheet 40 A	Distance from preceding B.M. unless otherwise stated	Description of Bench mark	Height above Mean Sea-Level
	<i>miles</i>	<b>Branch-Line 101 A (Sukkur to Hyderabad).</b> <i>[Section Sukkur-Bandhi revised in 1924-25 and 1927-28].</i>	<i>feet</i>
286	0.48	G.T.S. on brick on third step from bottom of northernmost B.M. western line ash-pit at its S. end, 74½ feet S. of N. points' signal No. 16, 10½ feet W. of northernmost water-column opposite telegraph post No. 265/8 and about a furlong N. of Gambat railway station.  <i>Note: Bench mark No. 287 was reported destroyed in 1930.</i>	170.097
288	0.29	G.T.S. on brick on second step from bottom of eastern line B.M. ash-pit, at its S. end, 95 feet from W. corner of Gambat railway station platform pailing above ramp, 81½ feet from water-column close to N. end of the ash-pit, about 73 feet from N.E. corner of water-tank and opposite telegraph post No. 265/2.  <i>Note: Bench mark No. 289 was reported destroyed in 1930.</i>	169.238
290	2.16	G.T.S. on brick on W. parapet, 8 feet S. of its N. end, of B.M. railway bridge No. 106, opposite telegraph post No. 262/22 from Karāchi.	167.428
291	0.85	G.T.S. on brick on W. parapet, at its middle, of railway B.M. culvert No. 105, opposite telegraph post No. 262/2 from Karāchi.  <i>Note: Bench mark No. 292 was reported destroyed in 1930.</i>	164.697
293 (14)	3.36	G.T.S. on stone lot into W. parapet, at its S. end, of B.M. railway culvert No. 97, between telegraph posts Nos. 258/15 and 258/16 from Karāchi.	163.364
294	0.62	G.T.S. on brick on W. parapet of railway culvert No. 95, B.M. opposite telegraph post No. 258/2 from Karāchi.	161.895
295	0.88	G.T.S. on brick on W. parapet of railway culvert No. 92, B.M. opposite telegraph post No. 257/4 from Karāchi.	161.393
296	1.20	G.T.S. on brick on W. parapet of railway culvert No. 87, B.M. about 20 feet S. of mile-plate No. 256 from Karāchi.	162.724

## Bench marks falling in Degree Sheet 40 A

Number in Sheet 40 A	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<b>Branch-Line 101 A (Sukkur to Hyderabad).</b> [Section Sukkur-Bandhi revised in 1924-25 and 1927-28].	feet
297	1.27	G.T.S. O B.M. on brick flooring of veranda, against E. wall, of main station building of Setharja, about 8 feet N. of telegraph office door and close to passengers' exit.	166.653
10	0.45	G.T.S. O B.M. on stone slab let into W. parapet, at its S. end, of railway culvert No. 82, between telegraph posts Nos. 251/13 and 254/14 from Karachi.	160.659 $\beta$
298	1.45	G.T.S. O B.M. on brick on W. parapet of railway culvert No. 76, opposite telegraph post No. 253/3 from Karachi.	160.246
299 (9)	0.36	G.T.S. O B.M. on stone slab let into W. parapet, at its S. end, of railway bridge No. 75, opposite telegraph post No. 252/17 from Karachi.	160.100 $\delta$
300	1.25	G.T.S. O B.O.M. on brick on W. cap of S. abutment of railway bridge No. 71, between telegraph posts Nos. 251/12 and 251/13 from Karachi.	162.626
8	0.98	G.T.S. O B.M. on stone slab let into W. parapet of railway culvert No. 68, opposite telegraph post No. 250/12 from Karachi.  <i>Note: Bench mark No. 301 was reported destroyed in 1930. (7)</i>	156.679 $\beta$
302	3.52	G.T.S.O.B.M. on N. plinth of eastern bathroom of P.W.D. inspection bungalow opposite Mahrabpur railway station.	148.988
4	0.40	G.T.S. O B.M. on stone slab let into W. parapet, at its S. end, of railway culvert No. 60, opposite telegraph post No. 246/19 from Karachi.	154.110 $\beta$
303	1.57	G.T.S. O B.M. on brick on W. parapet, about 7 feet S. of its N. end, of railway culvert No. 54, between telegraph posts Nos. 245/4 and 245/5 from Karachi.	160.840
304*	1.33	G.T.S. O B.M. on brick in the middle of W. parapet of railway bridge No. 49, opposite telegraph post No. 248/22 from Karachi.	154.136

 $\beta$  Old value found correct in 1924-25 and 1927-28. $\delta$  Revised value from the levelling of 1924-25 and 1927-28.

\* Reported disturbed in 1930.

Bench marks falling in Degree Sheet 40 A

Number in Sheet 40 A	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Branch-Line 101 A (Sukkur to Hyderabad).</b> <i>[Section Sukkur-Bandhi revised in 1924-25 and 1927-28].</i>	<i>feet</i>
2	0.98	G.T.S. O B.M. on stone slab let into W. parapet of railway culvert No. 47, between telegraph posts Nos. 242/22 and 242/23 from Karāchi.	154.729 $\beta$
1	2.36	G.T.S. O B.M. on stone slab let into W. parapet, at its S. end, of railway culvert No. 41, between telegraph posts Nos. 240/13 and 240/14 from Karāchi.	150.782 $\beta$
305	1.49	G.T.S. O B.M. on brick on W. parapet, at its N. end, of railway bridge No. 37, between telegraph posts Nos. 239/2 and 239/3 from Karāchi.	149.796

$\beta$  Old value found correct in 1924-25 and 1927-28.



## Bench marks falling in Degree Sheet 40 B

Number in Sheet 40 B	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 101 (Karachi to Khanpur). [Section Kotri-Jacobabad revised in 1920-21, coincident with part of Main-Line 53].	feet
83	1.48 from B.M. 162/40C	G.T.S. O B.M. near centre of N. parapet of culvert No. 407 between telegraph posts Nos. 51/19 and 51/20.	118.151
82	1.52	G.T.S. O B.M. at S. end of stone coping of platform of Sann railway station.	133.995
81	0.85	G.T.S. O B.M. A.D. 1920 (Type B) at Sann railway station. Embedded about 2 feet below ground level opposite down distant signal and 14 feet from centre of rails. The distances and bearings of the surrounding objects are: NE. cap of NW. abutment of railway girder bridge over Sann river 59 feet and 147°; down distant signal 5½ feet and 175°; mile-post No. 54, 45½ feet and 171°; telegraph post No. 54/1, 48 feet and 248°; fog signal on SW. side of railway line 311 feet and 316°. A masonry referring pillar with stone slab inscribed G.T.S. B.M. 6 Ft stands 8 feet 9 inches NW. of the bench mark.	132.694
80	0.73	G.T.S. O B.M. on SE. corner stone of railway drain No. 417 between telegraph posts Nos. 54/21 and 54/22.	125.360
79	1.67	G.T.S. O B.M. on S. end of W. parapet of railway bridge No. 424 between telegraph posts Nos. 56/14 and 56/15.	112.140
78	0.91	G.T.S. O B.M. on SW. parapet of railway bridge No. 426 between telegraph posts Nos. 57/12 and 57/13.	110.353
77	1.59	G.T.S. O B.M. on NE. cap of railway bridge No. 429 between telegraph posts Nos. 59/1 and 59/2.	110.883
76	1.12	G.T.S. O B.M. on SE. cap of railway bridge No. 430 between telegraph posts Nos. 60/5 and 60/6.	108.057
75	1.59	G.T.S. O B.M. on SW. cap of railway bridge No. 432 between telegraph posts Nos. 61/19 and 61/20.	115.909
74*	1.38	B.O.M. on S. guard-stone of E. parapet of bridge on the Kotri-Schwān road about ¼ mile S. of milestone No. 24 from Schwān and opposite Ohachara village.	109.460

\* Reported missing in 1925

Bench marks falling in Degree Sheet 40B

Number in Sheet 40B	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<b>Main-Line 101 (Karachi to Khanpur).</b> <i>[Section Kotri-Jacobabad revised in 1920-21].</i>	feet
78*	0.81	G.T.S. O B.M. on zinc plate fixed to the root of a <i>khagal</i> tree on E. edge of the Kotri-Selwān road, about 132 yards N. of milestone No. 24 from Selwān.	105.540
72	2.21	G.T.S. O B.M. on brick flooring, against wall, between two doors of W. veranda of school in Amri village.	106.708
71	1.37	G.T.S. O B.M. near centre of stone coping of platform of Amri railway station.	110.828
		<b>Branch-Line 101 A (Sukkur to Hyderabad).</b> <i>[Section Sukkur-Bandhi revised in 1924-25 and 1927-28, coincident with part of Main-Line 52].</i>	
177	0.98 [from B.M. 305/40A]	G.T.S. O B.M. on brick flooring of westerly room, 2 feet from its E. wall and 6 feet from its S. wall, of second class P. W. D. inspection bungalow, Kandiāro Road.	149.247
178†	0.06	G.T.S. O B.M. A.D. 1924 at second class P. W. D. inspection bungalow, Kandiāro Road. Consists of a stone slab 12 inches by 17 inches by 3 inches. The stone is embedded in a pillar of masonry flush with its upper surface. The pillar is 2 feet square and 6 inches high, the upper surface of the pillar being 3 inches above ground level. The masonry pillar rests on a bed of concrete 2½ feet square and 8 inches high. It is surrounded by a mud wall 9 feet square and 3 feet high. The distances and bearings of the surrounding objects are: NW. corner of second class P. W. D. inspection bungalow 70 feet 4 inches and 64° 4; SW. corner of same 51 feet 1 inch and 70° 1; SE. corner of same 80 feet and 96° 4; centre of well 250 feet and 161°; NE. corner of first class P. W. D. inspection bungalow 234 feet 5 inches and 198° 9; NW. corner of same 262 feet 5 inches and 209°.	148.801
179	0.70	G.T.S. O B.M. on brick flooring, at its SW. corner, of third class passengers' waiting room of Kandiāro Road railway station.	156.035

\* Reported missing in 1925.

† Reported disturbed in 1930.

## Bench marks falling in Degree Sheet 40 B

Number in Sheet 40 B	Distance from preceding B.M. miles, or otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Branch-Line 101 A (Sukkur to Hyderabad). [Section Sukkur-Bandhi revised in 1924-25 and 1927-28].	feet
180 (50)	1.82	GTS B.M. on stone slab let into W. parapet, at its S. end, of railway bridge No. 33, opposite telegraph post No. 236/10 from Karachi.	150.429 δ
181	1.03	GTS B.M. on brick on W. parapet of railway culvert No. 29, opposite telegraph post No. 235/10 from Karachi.	145.558
182 (49)	0.65	GTS B.M. on stone slab fixed in a pillar of masonry flush with its upper surface on W. side of railway lines, opposite telegraph post No. 234/18 from Karachi, about 400 feet N. of level-crossing lodge No. 234/16.	145.280 δ
183	2.17	GTS B.M. on brick on W. parapet, at its middle, of railway culvert No. 28, opposite telegraph post No. 232/14 from Karachi.	144.384
184	1.67	GTS B.M. on brick on E. parapet of railway culvert No. 23, between telegraph posts Nos. 230/21 and 230/22 and about 100 feet N. of N. distant signal of Bhiria Road railway station.	143.052
185	0.65	GTS B.M. on brick flooring of third class passengers' waiting hall at its SE. corner of Bhiria Road railway station.  <i>Note: From this point emanates a branch-line.</i>	145.863
186	1.27	GTS B.M. on stone slab fixed in N. parapet, about 9 feet from its E. end, of road bridge over Nasrat wāh, about 1½ miles from Bhiria Road railway station and about 1½ miles S. of Dingo village.	151.882
187	0.15	GTS B.M. on brick on E. parapet of regulator bridge over Māchki-Karya (minor), about 120 feet N. of canal-stone No. 23, at the junction of Māchki-Karya and Nasrat wāh, about 1½ furlongs S. of canal <i>chauki</i> on S. side of road from Bhiria to Bhiria Road railway station and about ½ mile NW. of Māchki village.  <i>Note: The branch-line ends here.</i>	144.515

δ Revised value from the levelling of 1924-25 and 1927-28.

Bench marks falling in Degree Sheet 40B

Number in Sheet 40B	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Branch-Line 101 A (Sukkur to Hyderabad). [Section Sukkur-Bandhi revised in 1924-25 and 1927-28].	feet
188 (45)	2.11 [from B.M.165]	G.T.S. B.M. on stone slab let into W. parapet of railway culvert No. 17, opposite telegraph post No. 228/7 from Karāchi.	186.875 δ
189	3.29	G.T.S. B.M. on brick on W. wing-wall of N. abutment, of railway bridge No. 8, between telegraph posts Nos. 224/23 and 225/1 from Karāchi.	188.936
43	0.95	G.T.S. B.M. on stone slab let into W. cap of S. abutment of railway bridge No. 7, opposite telegraph post No. 224/1 from Karāchi.	140.227 β
190	0.70	G.T.S. B.M. on brick on W. cap of S. abutment of railway bridge No. 5, opposite telegraph post No. 223/8 from Karāchi.	139.670
191	0.48	B.O.M. on brick flooring, in the middle of central door, under arch, of N. veranda of first class P. W. D. inspection bungalow, Pad Idan, 100 feet 5 inches SE. of telegraph post No. 222/22 from Karāchi.	136.818
192	0.04	G.T.S. B.M. on brick on fourth step from bottom, against third pillar from E., of S. veranda of first class P. W. D. inspection bungalow, Pad Idan, 126 feet N. of telegraph post No. 222/21 from Karāchi.	135.748
193	0.09	G.T.S. B.M. A.D. 1924 at R.C.C. Subdivisional office, Pad Idan. Consists of a stone slab 12 inches by 17 inches by 3 inches. The stone is embedded in a pillar of masonry flush with its upper surface. The pillar is 2 feet square and 6 inches high, the upper surface of the pillar being 3 inches above ground level. The masonry pillar rests on a bed of concrete 2½ feet square and 8 inches high. It is surrounded by a mud wall 9 feet square and 3 feet high. The distances and bearings of the surrounding objects are: NE. corner of establishment quarters attached to the office 62 feet 4 inches and 115°·2; NW. corner of same 35 feet 5 inches and 132°·3; SW. corner of same 55 feet and 153°·8; canal telegraph post 25 feet 4 inches and 170°·5; N. home signal of Pad Idan railway station 257°·1; railway	134.498

β Old value found correct in 1924-25 and 1927-29.

δ Revised value from the levelling of 1924-25 and 1927-28.

## Bench marks falling in Degree Sheet 40 B

Number in Sheet 40 B	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Branch-Line 101 A (Sukkur to Hyderabad).</b> <i>[Section Sukkur-Bandhi revised in 1924-25 and 1927-28].</i>	<i>feet</i>
193	(Contd.)	telegraph post No. 222/21 from Karāchi 427 feet and 281°·5; centre of well in the compound of the bungalow 120 feet and 294°·6; SE. corner of first class P. W. D. inspection bungalow, Pad Idan 388 feet 8 inches and 296°·8; NE. corner of same 418 feet 4 inches and 302°.	134·493
194	0·43	B.O.M. on brick on E. end of first step from top or second step from bottom of E. of the two ash-pits in lines of W. engine-shed, at its S. end, 10 feet E. of W. water-column, 39½ feet from NW. corner of W. engine-shed of Pad Idan railway station.  <i>Note: Bench mark No. 195 was reported destroyed in 1930.</i>	137·087
196	0·67	G.T.S. on brick on W. parapet of railway bridge No. 3, B.M. opposite telegraph post No. 221/19 from Karāchi and 86 feet N. of S. distant signal of Pad Idan railway station.	138·238
197	1·04	B.O.M. on stone slab let into W. parapet, at its S. end, of railway bridge No. 2, between telegraph posts Nos. 220/17 and 220/18 from Karāchi.	137·344
198	1·38	G.T.S. on brick on W. parapet, at its middle, of railway B.M. culvert No. 222, between telegraph posts Nos. 219/9 and 219/10 from Karāchi.	133·609
199	2·36	G.T.S. on brick on W. parapet, at its middle, of railway B.M. culvert No. 215, opposite telegraph post No. 216/23 from Karāchi.	131·947
200	2·65	G.T.S. on stone block, fixed on first pier from N. or B.M. second pier from S., under E. girder of western line, of bridge No. 210, over Nasrat <i>wāh</i> between telegraph posts Nos. 214/8 and 214/9 from Karāchi.  <i>Note: The point of reference is the eastern circle.</i>	130·335
34	4·54	G.T.S. on stone slab let into W. parapet, at its S. end, of B.M. railway culvert No. 204, opposite telegraph post No. 209/19 from Karāchi.	125·059 B

B Old value found correct in 1924-25 and 1927-28.

Bench marks falling in Degree Sheet 40 B

Number in Sheet 40 B	Distance from preceding B.M. unless otherwise stated	Description of Bench mark*	Height above Mean Sea-Level
	<i>miles</i>	<b>Branch-Line 101 A (Sukkur to Hyderabad).</b> [ <i>Section Sukkur-Bandhi revised in 1924-25 and 1927-28</i> ].	<i>feet</i>
201	0.37	G.T.S. B.M. on brick flooring of S. veranda, against inner wall between the two doors, of first class P. W. D. inspection bungalow, Bāndhi.	127.266
202	0.16	B.O.M. on N. curb of well, on S. side of road from Bāndhi railway station to Moro, about 200 feet SW. of second class P. W. D. inspection bungalow, Bāndhi.	129.089
203*	0.08	G.T.S. B.M. A.D. 1924 at second class P. W. D. inspection bungalow, Bāndhi. Consists of a stone slab 12 inches by 17 inches by 3 inches. The stone is embedded in a pillar of masonry flush with its upper surface. The pillar is 2 feet square and 6 inches high, the upper surface of the pillar being 3 inches above ground level. The masonry pillar rests on a bed of concrete 2½ feet square and 8 inches high. It is surrounded by a mud wall 9 feet square and 3 feet high. The distances and bearings of the surrounding objects are: SW. corner of establishment quarters attached to second class P. W. D. inspection bungalow, 147 feet 4 inches and 0°; SE. corner of same 153 feet 4 inches and 12°; centre of road from Bāndhi railway station to Moro 36 feet S.; SW. corner of second class P. W. D. inspection bungalow 96 feet 3 inches and 305°; SE. corner of same 68 feet 3 inches and 332°.	124.840
		[ <i>Section Bandhi-Hyderabad revised in 1927-28-29</i> ].	
204	0.15	G.T.S. B.M. on brick flooring of third class passengers' waiting hall, at its SE. corner of Bāndhi railway station.	129.749
205	3.78	B.O.M. on top of stone pillar fixed in the ground and projecting about 9 inches above ground level, close to railway wire-fencing on W. side of railway lines, 83 feet NW. of NW. corner of level-crossing lodge No. 205/15 and opposite telegraph post No. 205/15 from Karūchi.	117.847
206	1.48	B.O.M. on top of stone pillar fixed in the ground and projecting about 1½ feet above ground level, on W. side of railway lines, close to railway wire-fencing and between telegraph posts Nos. 201/3 and 204/2 from Karūchi.	118.669

\* Reported not in existence in 1931.

## Bench marks falling in Degree Sheet 40 B

Number in Sheet 40 B	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Branch-Line 101 A (Sukkur to Hyderabad). [Section Bandhi-Hyderabad revised in 1927-28-29].	feet
207	1.84	B.O.M. on top of stone pillar fixed in the ground and projecting about 14 feet above ground level, close to railway wire-fencing, on W. side of railway lines and between telegraph posts Nos. 202/19 and 202/18 from Karachi.	117.158
208	1.57	O B.O.M. on stone block fixed on S. abutment, under E. girder of western line rails, of railway bridge No. 203 opposite telegraph post No. 201/5 from Karachi.	114.920
209	0.69	G.T.S. B.M. A.D. 1924 at second class P.W.D. inspection bungalow, Daur. Consists of a stone slab 12 inches by 17 inches by 8 inches, embedded flush with the upper surface of a pillar of masonry 2 feet square and 6 inches high, which rests on a bed of concrete 2½ feet square and 8 inches high. The upper surface of the pillar is 3 inches above ground level. It is surrounded by a mud wall 9 feet square and 3 feet high. The distances and bearings of the surrounding objects are: Well in the compound of the bungalow 55 feet and 22°; NW. corner of canal darogha's quarters 218 feet 2 inches and 79° 5'; SW. corner of same 216 feet and 84°; NE. corner of the bungalow 265 feet and 146°; NE. corner of establishment quarters attached to the bungalow 136 feet 4 inches and 152° 5'; NW. corner of same 126 feet 4 inches and 163°.	112.819
210	0.10	B.O.M. on brick flooring, at plinth level, of N. enclosed veranda, under the central arch, of first class P.W.D. inspection bungalow, Daur.	116.350
211*	0.08	G.T.S. B.M. on brick flooring of S. veranda, against S. wall of main building, under the central window, of second class P.W.D. inspection bungalow, Daur.	118.943
212*	0.28	G.T.S. B.M. on brick flooring of third class passengers' waiting hall, against its N. wall and about 7 feet from its NW. corner of Daur railway station.	119.633
213	0.05	B.O.M. on plinth of N. wall, at its NW. corner, of menials' quarters (T2) at Daur railway station. The block is about 200 feet S.W. of station building and about 100 feet S. of assistant station master's quarters (Block No. T3).	118.214

\* Reported not in existence in 1930-31.

Bench marks falling in Degree Sheet 40B

Number in Sheet 40B	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Branch-Line 101 A (Sukkur to Hyderabad).</b> <i>[ Section Bandhi-Hyderabad revised in 1927-28-29 ].</i>	<i>feet</i>
214*	1.26	B.O.M. on top of stone pillar embedded in the ground, close to E. railway wire-fencing on E. side of railway lines and between telegraph posts Nos. 199/4 and 199/5 from Karāchi.	114.056
215	1.14	O.B.M. on top of stone pillar E. of the railway lines and opposite telegraph post No. 198/1 from Karāchi.	112.800
216	1.71	G.T.S. B.M. on stone pillar E. of the railway lines and between telegraph posts Nos. 196/8 and 196/9 from Karāchi.	111.125
217	1.52	O.B.M. on top of stone pillar embedded in the ground, close to railway wire-fencing, on W. side of railway lines and opposite telegraph post No. 194/20 from Karāchi.	110.580
218	2.09	B.O.M. on brick on second step from bottom of flight of steps leading to the down story of cabin of Bucheri railway station.	112.826
219 PP	0.48	G.T.S. B.M. A.D. 1924 at R.C.C. Subdivisional officer's rest-house, Bucheri. Consists of a stone slab 19 inches by 13 inches by 3 inches, embedded flush with the upper surface of a pillar of masonry 2 feet square and 6 inches high which rests on a bed of concrete 2½ feet square and 8 inches high, the upper surface of the pillar is 3 inches above ground level. It is situated at the extreme NE. corner of the compound of the rest-house and measures 22 feet and 36½ feet respectively from NE. and SE. corners of the out-houses of the bungalow, which is 3½ furlongs SSW. of the Bucheri railway station.	106.995
220	0.05	G.T.S. B.M. on brick flooring, against wall, of S. veranda between first and second door from W. of R.C.C. Subdivisional officer's rest-house, Bucheri.	109.144
221	2.05	B.O.M. on inner plinth of N. parapet of culvert over a distributary running parallel to W. side of railway lines and between telegraph posts Nos. 190/12 and 190/11 from Karāchi.	107.489

\* Reported not in existence in 1930-31.



## Bench marks falling in Degree Sheet 40 B

Number in Sheet 40 B	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Branch-Line 101 A (Sukkur to Hyderabad).</b> <i>[ Section Bandhi-Hyderabad revised in 1927-28-29 ].</i>	<i>feet</i>
222	1.47	G.T.S. B.M. on brick coping of railway masonry water-tank, at its S. side, on E. side of railway lines and about 30 feet N. of telegraph post No. 188/24 from Karāchi.	108.368
223	0.99	○ on stone pillar E. of the railway lines and between telegraph posts Nos. 188/1 and 187/24 from Karāchi.	101.847
224	0.77	○ on top of stone pillar E. of the railway lines and near telegraph post No. 187/6.  <i>Note: Bench mark No. 225 was reported destroyed in 1930.</i>	101.825
226	2.28	B.O.M. on brick on S. parapet, at its middle, of road culvert at junction of two roads one from Rohri and the other from Jām Sahib, about 2 furlongs W. of level-crossing lodge No. 185/2, about 60 feet E. of S. entrance gate in E. compound-wall of headquarter's police lines at Nawābshāh and at SW. corner of public garden.	97.926
227*	0.26	G.T.S. B.M. on brick near E. end of second step from bottom of W. door leading to N. veranda of first class P.W.D. inspection bungalow, Nawābshāh.	97.893
228	0.05	G.T.S. B.M. on brick flooring of S. enclosed veranda, at its NE. corner, of first class P.W.D. inspection bungalow, Nawābshāh.	98.862
229	0.09	G.T.S. B.M. on brick on outer step at W. side of circular enclosing wall of embedded bench mark (No. 231) at first class P.W.D. inspection bungalow, Nawābshāh.	96.390
230	0.00	B.O.M. on brick at W. side of circular enclosing wall, above the step, of embedded bench mark (No. 231) at first class P.W.D. inspection bungalow, Nawābshāh.	97.204

\* Reported not in existence in 1931.

Bench marks falling in Degree Sheet 40B

Number in Sheet 40B	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Branch-Line 101 A (Sukkur to Hyderabad). [Section Bandhi-Hyderabad revised in 1927-28-29].	feet
231	0.00	$\begin{smallmatrix} \text{C.T.S.} \\ \square \\ \text{B.M.} \\ \text{A.D. 1924} \end{smallmatrix}$ at first class P.W.D. inspection bungalow, Nawābshāh. Consists of a stone slab 12 inches by 8 inches by 3 inches, embedded flush with the upper surface of a pillar of masonry 3 feet square and 6 inches high, which rests on a bed of concrete 3 feet square and 2 feet high, the upper surface of the pillar is 3 inches above ground level. It is surrounded by a circular masonry wall 9 feet in diameter, 1 foot thick and 3 feet high. For access to the bench mark there is a 15-inch aperture at W. side of the wall, with two steps one outside and the other inside the aperture. It is situated in the SE. corner of the compound. The distances and bearings of the surrounding objects are: SE. corner of the bungalow 273 feet and 257°; NE. corner of same 266 feet and 270°; SW. corner of out-houses attached to the bungalow 247 feet and 289°; SE. corner of same 190 feet and 295°; compound wire-fencing 12 feet E., and N. main gate-pillar 112 feet and 140°.	96.076
232*	0.24	$\square$ O.M. on stone on W. projected wall of N. ash-pit, 1 foot above its bed, about 4 feet N. of S. end of the ash-pit and about 15 feet N. of N. water-column at W. side of rails at Nawābshāh railway station.	98.171
16*	0.14	$\begin{smallmatrix} \text{C.T.S.} \\ \square \\ \text{B.M.} \\ \text{A.D. 1904} \end{smallmatrix}$ at Nawābshāh railway station. Embedded in N. end of main station platform. Consists of a stone slab fixed to the upper surface of a block of masonry 1 foot by 1 foot flush with platform level. The distances and bearings of the surrounding objects are: NW. corner of wooden paling of platform enclosure 120 feet 6 inches and 327°; NE. corner of same 119 feet 6 inches and 337°; edge of main platform 23 feet E.; NE. corner of main station building 237 feet 4 inches and 163°; SE. corner of menials' quarters 144 feet and 260°; NE. corner of same 125 feet and 215°. (Revised description).	101.002 $\beta$
233†	1.02	$\square$ O.M. on stone on W. parapet of railway culvert No. 201 near telegraph post No. 183/19 from Karāchi.	97.861
234	0.90	○ on top of stone pillar E. of the railway lines and near telegraph post No. 182/21 from Karāchi.	96.206

$\beta$  Old value found correct in 1927-28-29.

\* Reported not found in 1930-31.

† Reported disturbed in 1930.

## Bench marks falling in Degree Sheet 40B

Number in Sheet 40B	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Branch-Line 101 A (Sukkur to Hyderabad).</b> [Section Bandhi-Hyderabad revised in 1927-28-29].	<i>feet</i>
235	0.76	○ on top of boundary stone pillar E. of the railway lines, opposite telegraph post No. 182/3 from Karāchi.	98.172
236	1.81	G.T.S. B.M. on brick on W. cap of N. abutment of railway bridge No. 195 between telegraph posts Nos. 180/20 and 180/19 from Karāchi.	99.044
237	1.15	G.T.S. B.M. on brick on W. cap of N. abutment of railway bridge No. 194, opposite telegraph post No. 179/16 from Karāchi.	96.926
238	0.45	B.O.M. on brick on third step, from bottom, leading to S. cabin and about 50 feet S. of railway station building, Nawāz Dahri.	99.207
239	0.95	G.T.S. B.M. on brick on W. cap of N. abutment of railway bridge No. 193, between telegraph posts Nos. 178/9 and 178/8 from Karāchi.	96.826
240	1.28	B.O.M. on stone slab let into W. cap of S. abutment of railway bridge No. 191, between telegraph posts Nos. 177/2 and 177/1 from Karāchi.	94.767
241	1.15	G.T.S. B.M. on brick on W. cap of S. abutment of railway bridge No. 190A, opposite telegraph post No. 175/21 from Karāchi.	92.472
242	0.78	○ on stone slab let into W. parapet of railway culvert No. 189, opposite telegraph post No. 175/3 from Karāchi.	91.825
243	0.78	G.T.S. B.M. on brick on E. cap of S. abutment of railway bridge No. 186 over Ali wāh, between telegraph posts Nos. 174/9 and 174/8 from Karāchi.	95.848
7	0.57	G.T.S. B.M. A.D. 1904 at Sarhari railway station. Embedded in N. end of main station platform. Consists of a stone slab fixed flush with the upper surface of a masonry block 4 feet by 4 feet. The distances and bearings	98.071 <sup>β</sup>

<sup>β</sup> Old value found correct in 1927-28-29

Bench marks falling in Degree Sheet 40 B

Number in Sheet 40 B	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Branch-Line 101 A (Sukkur to Hyderabad). [Section Bandhi-Hyderabad revised in 1927-28-29].	feet
7	(Contd.)	of the surrounding objects are: NE. corner of station building 254 feet and 162°; wooden paling of platform enclosure 22 feet W.; edge of main platform 22 feet E.; telegraph post No. 173/17 from Karāchi 235 feet and 79°. (Revised description).	93·671 β
244	0·40	○ on top of stone monolith 1 foot square at base and 1 foot high, the upper 3 inches being dressed to the form of a frustum of a pyramid terminating in a square of 4-inch side. It is built in a brick platform 3 feet square and flush with ground level. It is situated in compound of P.W.D. inspection bungalow, Sarhari. The distances and bearings of the surrounding objects are: SW. pillar of W. or main gate of bungalow 218 feet and 327°; NW. corner of bungalow 198 feet and 58½°; SW. corner of same 174 feet and 72¼°; railway station building 2½ furlongs WNW.	90·008
245	0·06	G.T.S. ○ B.M. on brick flooring at NE. corner of W. veranda of P.W.D. inspection bungalow, Sarhari.	91·059
246	0·63	G.T.S. ○ B.M. on brick on W. cap of S. abutment of railway bridge No. 183 over Ali Bahār <i>kachahri wāh</i> , near telegraph post No. 172/20 from Karāchi.	94·414
247 (5)	0·93	G.T.S. ○ B.M. on stone slab let into W. parapet of railway culvert No. 180, between telegraph posts Nos. 171/22 and 171/21 from Karāchi. (Revised description).	87·816 β
248	1·81	B.O.M. on brick on W. parapet of railway culvert No. 178, between telegraph posts Nos. 170/3 and 170/2 from Karāchi.	90·027
249	0·74	B.O.M. on brick on W. parapet of railway culvert No. 175, between telegraph posts Nos. 169/10 and 169/9 from Karāchi.	89·547
250	0·82	G.T.S. ○ B.M. on stone slab forming W. parapet of railway culvert No. 171, near telegraph post No. 168/13 from Karāchi.	90·169

β Old value found correct in 1927-28-29.

δ Revised value from the levelling of 1927-28-29.

## Bench marks falling in Degree Sheet 40B\*

Number in Sheet 40B	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<b>Branch-Line 101 A (Sukkur to Hyderabad).</b> [Section Bandhi-Hyderabad revised in 1927-28-29].	feet
2	1.10	G.T.S. □ B.M. A.D. 1904 at Lundo railway station. Embedded in N. end of main station platform. Consists of a stone slab fixed to the upper surface of a block of masonry 4 feet by 4 feet flush with platform level. The distances and bearings of the surrounding objects are: NE. corner of main station building 257 feet 2 inches and 140°; wooden paling of platform enclosure 22 feet 3 inches W.; NW. corner of wooden paling of platform enclosure 122 feet 6 inches and 303°; NE. corner of same 119 feet and 322°; edge of main platform 22 feet 8 inches E. ( <i>Revised description</i> ).	91.0338
		<i>Note: From this point emanates a branch-line.</i>	
251	0.85	G.T.S. □ B.M. on brick flooring of veranda, against E. wall, of R.C.C. rest-house, Lundo, 6 feet 5 inches S. of N. or front door of the building.	87.834
252	0.02	○ on top of stone monolith 1 foot square at base and 9 inches high, the upper 3 inches being dressed to the form of a frustum of a pyramid terminating in a square of 4-inch side. It is built in a brick platform 3 feet square and flush with ground level. It is situated in compound of R.C.C. rest-house, Lundo. The distances and bearings of the surrounding objects are: SE. corner of rest-house 72 feet 6 inches and 265°; NE. corner of same 99 feet and 289°; centre of N. or main gate 337°; SE. corner post of compound-fencing 97 feet 9 inches and 91½°; centre of roof of station building 2½ furlongs and 42½°.	86.457
		<i>Note: The branch-line ends here.</i>	
255	0.42 [from B.M. 2]	B.O.M. on top of stone pillar embedded close to E. wire-fencing on E. side of railway lines, about 50 feet SE. of telegraph post No. 166/1 from Karūchi.	88.860

\* Old value found correct in 1927-28-29.

Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 52 (Sujawal to Shikarpur).</b> <i>[ Portion between Sujawal and Hyderabad not revised ].</i>	<i>feet</i>
1	2.18 [ from B.M. 62/40D ]	G.T.S. on W. side of most southerly pier of bridge across B.M. Hassanali canal near Shāhkapur.	54.471
2*	0.69	O at stone pillar. On upper surface of P.W.D. bench B.M. mark, on E. margin of road, 1 mile N. of Hassanali canal bridge near Shāhkapur.	44.751
3*	1.43	O at stone pillar. On upper surface of P.W.D. bench B.M. mark, on E. margin of road, 2 miles N. of Hassanali canal bridge.	47.865
4*	1.48	B.M. at stone pillar. On upper surface of P.W.D. bench O mark, on E. margin of road, 4 miles N. of Hassanali canal bridge and 114 chains S. of B.M. 6/40 C.	47.871
5	1.32	G.T.S. at stone pillar. On upper surface of P.W.D. bench O B.M. mark, on E. margin of road, 8 chains S. of B.M. 6/40 C.	47.468
6*	0.11	G.T.S. at Gaja wāh. Embedded 6 inches below ground B.M. level, on right bank of canal, 92 feet from pilaster of SW. wing wall, 118 feet from water gauge attached to bridge, and 25 feet S. of canal bank. The letters G.T.S. B.M. are painted on bridge to indicate the approximate position of the bench mark.	47.978
7*	1.49	O at stone pillar. On upper surface of P.W.D. bench B.M. mark, on E. margin of road, 2 miles N. of B.M. 6/40 C.	48.519
8*	2.97	O at stone pillar. On upper surface of P.W.D. bench B.M. mark, on E. margin of road, 2 miles S. of B.M. 10/40 C.	48.234
9*	2.09	□ at masonry pillar. Railway bench mark No. 112, 2 chains S. of B.M. 10/40 C.	58.879

\* Reported not found in 1929.

## Bench marks falling in Degree Sheet 40 C

Number in Sheet 40 C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 52 (Sujawal to Shikarpur) [Portion between Sujawal and Hyderabad not revised].	feet
10	0.03	G.T.S. B.M. at Tando Muhammad Khān railway station. Embanked W. of main entrance to station platform, 149 and 145 feet respectively from NW. and SW. corners of station.  Note: Bench mark No. 11 was reported destroyed in 1927.	57.044
12*	1.86	+ at masonry pillar. Railway bench mark No. 102, near telegraph post No. <sup>B</sup> 132/22.	56.842
13*	0.40	G.T.S. B.M. on S. parapet of culvert, near telegraph post No. <sup>B</sup> 132/13.	55.997
14*	0.74	+ at masonry pillar. Railway bench mark No. 96, near telegraph post No. <sup>B</sup> 131/10.	56.469
15*	1.15	G.T.S. B.M. on E. parapet of culvert, near telegraph post No. <sup>B</sup> 131/15.	56.185
16*	0.33	G.T.S. B.M. on SE. cap of abutment of bridge, near telegraph post No. <sup>B</sup> 130/9.	65.868
17*	1.64	G.T.S. B.M. on SW. parapet of culvert, near telegraph post No. <sup>B</sup> 128/7.	57.625
18*	0.40	+ at wooden post. Railway bench mark No. 78, near telegraph post No. <sup>B</sup> 128/6.	62.506
19*	2.13	G.T.S. B.M. on SW. cap of abutment of bridge, near telegraph post No. <sup>B</sup> 126/5.	60.079
20*	0.80	+ at wooden post. Railway bench mark, near telegraph post No. <sup>B</sup> 125/10.	60.093

\* Reported not found in 1929.

Bench marks falling in Degree Sheet 40 C

Number in Sheet 40 C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 52 ( Sujawal to Shikarpur ).</b> <i>[ Portion between Sujawal and Hyderabad not revised ].</i>	<i>feet</i>
21	0.95	G.T.S. O B.M. at Khathar railway station. Embedded W. of railway station, 145 and 148 feet respectively from its NW. and SE. corners and 143 feet W. of centre of entrance to platform.	60.121
22*	0.57	G.T.S. O B.M. on masonry base of N. distant signal at Khathar railway station.	62.055
23†	3.43	G.T.S. O B.M. on SW. parapet of pipe, near telegraph post No. B 120/9.	64.805
24	0.81	G.T.S. O B.M. on SW. parapet of bridge, near telegraph post No. B 119/14.	63.753
25	1.19	G.T.S. O B.M. on SW. parapet of culvert, near telegraph post No. B 118/10.	65.027
26*	2.72	+ at masonry pillar. Railway bench mark No. 11, 4 mile SW. of milestone No. 116.	66.923
27	0.54	G.T.S. O B.M. on W. parapet of bridge, 2 miles E. of Hyderabad railway station.	65.059
31	2.54	P.W.D. O B.M. 1890 at old <i>kachahri</i> , Hyderabad. Embedded SW. of and immediately facing the treasury room door. It is 167 feet S. of W. corner of the <i>kachahri</i> building, and 64 feet from its S. corner. Centre of the middle steps is 70 feet distant, and water-tap is 14 feet N. of the bench mark. ( <i>P. W. D. bench mark</i> ).	104.1618
Note: This is the common bench mark in revised and unrevised portions of line No. 52.			

\* Reported not found in 1923.

† Reported worn out in 1930.

‡ Revised value from the levelling of 1909-10.



## Bench marks falling in Degree Sheet 40 C

Number in Sheet 40 C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<b>Main-Line 101 (Karachi to Khanpur).</b> [Section Karachi-Kotri revised in 1924-26, coincident with part of Main-Line 53].	feet
466	1.93 [from B.M. 115/40D]	G.T.S. on bedrock, 48 feet NW. of Tatta-Jerruck road, at B.M. the head of a stream flowing SW., about $\frac{1}{2}$ furlong N. of the point where the road makes a steep descent and about $\frac{1}{2}$ furlong SW. of milestone Tatta 26, Jerruck 6.	128.368
467	0.92	G.T.S. on outcropping rock on the edge of a high ground B.M. overlooking the road, 235 feet E. of Tatta-Jerruck road, about $\frac{1}{2}$ furlong from milestone Tatta 27, Jerruck 5 and bears $63^{\circ}$ and it also bears $64^{\circ}$ to Shaikh Jhakro's tomb.	120.909
468	1.06	B.M. on bedrock, 39 feet NW. of Tatta-Jerruck road, 178 feet NE. of milestone Tatta 28, Jerruck 4 and 198 feet NE. of junction of a cart-track. It bears $285^{\circ}$ to milestone Tatta 28 and $234^{\circ}$ to Shaikh Jhakro's tomb.	80.362
469	1.79	G.T.S. on zinc plate fixed to the root of a <i>kikar</i> tree, 44 feet B.M. S. of Tatta-Jerruck road, 284 feet E. of a culvert on the road and 388 feet WSW. of milestone Tatta 30, Jerruck 2. Letters B.M. have been tarred to the trunk of the tree.	45.604
470	1.04	G.T.S. on a small outcropping rock, 104 feet W. of Tatta- B.M. Jerruck road from a point 88 feet S. of milestone Tatta 31, Jerruck 1, 140 feet and $66^{\circ}$ to milestone Tatta 31, 297 feet and $151^{\circ}$ to shrine of Mira Shāh Pir and about 363 feet and $181^{\circ}$ to bifurcation of road.	79.070
471	1.05	B.M. on top of stone pillar 6 inches square and 1 foot above ground level, fixed into a masonry platform, situated in the S. corner of compound wall of old <i>dharmasala</i> (in ruins). It measures 7 feet from S. corner of compound wall (in ruins), 144 feet from NE. and 172 feet from NW. corners of police lines, Jerruck.	84.082

Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M., unless otherwise stated	Description of Bench mark	Height above Mean Sea-Level
	miles	<b>Main-Line 101 (Karachi to Khanpur).</b> [ <i>Section Karachi-Kotri revised in 1924-26</i> ].	feet
472	0.09	<b>C.T.S. O B.M.</b> on bedrock in level with road, 99 feet N. of milestone Jerruck 0, Kotri 24, 213 feet W. of NW. corner of house of Sub-Inspector of Police, Jerruck. It is situated at the head of a <i>nala</i> flowing north.  <i>Note: From this point emanates a branch-line to standard bench mark, Jerruck.</i>	84.167
473rr	0.30	Top of copper bolt (no inscription) fixed on top of concrete monolith of Standard Bench Mark (Minor Type) at Jerruck. (Primary mark). Situated on top of hillock $\frac{1}{4}$ mile SE. of Police Lines, Jerruck. The distances and bearings of the surrounding objects are: Top of hillock just above and N. of hospital on right bank of Indus river, about $\frac{1}{2}$ mile and $41^{\circ}$ ; chimney of <i>dak</i> bungalow about $\frac{1}{4}$ mile and $93^{\circ}$ ; centre of rifle range about $\frac{3}{4}$ mile and $292^{\circ}$ ; E. knoll of long flat range of hill near milestone 15 from Kotri and 1 mile S. of Aungar village about 9 miles and $352^{\circ}$ . Consists of a circular copper bolt $1\frac{1}{2}$ inches in diameter fixed on top of concrete monolith 1 foot square at base and 3 feet high, the upper 3 inches being moulded to the form of a frustum of a pyramid terminating in a smooth square of about 3-inch side. The monolith rests on a bed of concrete on rocky foundation 5 feet square and 3 feet deep, the upper surface of monolith being 1 foot above ground level. It is surrounded by a stone masonry wall 5 feet square (outside), 1 foot thick, and $2\frac{1}{2}$ feet high. It includes two supplementary marks, one on E. side of the monolith consisting of hard stone prism 8 inches long and 3 inches square, its smooth top flush with the surface of the concrete bed, and the other a stout round iron bolt of $\frac{3}{4}$ -inch diameter and 8 inches long built horizontally into the S. masonry wall and projecting about $1\frac{1}{2}$ inches out of it. The inner enclosure is filled in with rubble to a height of about 6 inches above the top surface of the monolith and the rest with earth.  <i>Note: The foundation is on solid rock and the nearest road is about <math>\frac{1}{4}</math> mile distant.</i>	150.198


## Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 101 (Karachi to Khanpur).</b> <i>[Section Karachi-Kotri revised in 1924-26].</i>	<i>feet</i>
474	0.00	Iron bolt (no inscription) let into the S. masonry wall of Standard Bench Mark (Minor Type) at Jerruck. (Supplementary mark).	150.597
475	0.00	Top of stone prism (no inscription) on E. side of monolith of Standard Bench Mark (Minor Type) at Jerruck. (Supplementary mark).	149.393
		<i>Note: The branch-line ends here.</i>	
476	1.03 <i>[from B.M. 472]</i>	G.T.S. O.M. on layer of bedrock, 90 feet E. of Jerruck-Kotri road, 339 yards N. of milestone Jerruck 1, Kotri 23 and bears $174^{\circ}$ to same and also bears $282^{\circ}$ to huts (N. end) called Mako-ka-goth and about 80 feet N. of bifurcation of the short-cut of road.	70.758
477	0.86	G.T.S. E.M. on bedrock near the edge of high ground, 112 feet E. of Jerruck-Kotri road from a point 214 feet N. of milestone Jerruck 2, Kotri 22 and 247 feet from the milestone and bears $208^{\circ}$ to same.	64.121
478	1.14	G.T.S. B.M. on outcropping rock, 28 feet E. of Jerruck-Kotri road, about $1\frac{1}{2}$ furlongs N. of milestone Jerruck 3, Kotri 21, and bears $168^{\circ}$ to same.	59.612
479	0.83	G.T.S. B.M. on a small outcrop of rock, 42 feet E. of Jerruck-Kotri road, 1 furlong N. of milestone Jerruck 4, Kotri 20, and bears $174^{\circ}$ to same and about 2 furlongs N. of junction of a cart-track running east and west.	52.746
480	1.60	B.O.M. on bedrock, 56 feet W. of Jerruck-Kotri road, 81 feet SE. of SE. corner of Hāji Ahmad's house in goth Siddiq Junyajo, about $1\frac{1}{2}$ furlongs NE. of goth itself, about 528 feet N. of the junction of a cart-track from the goth with the main road and about $3\frac{1}{2}$ furlongs S. of milestone Jerruck 6, Kotri 18.	54.722

Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 101 (Karachi to Khanpur). [Section Karachi-Kotri revised in 1924-26].	feet
481	1.23	G.T.S. on rock in situ, 316 feet W. of Jerruck-Kotri road, B.M. 185 yards SW. of milestone Jerruck 7, Kotri 17, and bears 450° to same. It is about 462 feet ENE. of (Saihbano) cow-shed and about ¼ mile SW. of Hāji Umed Ali Shūh's goth.	56.624
482	1.39	G.T.S. on rock in situ, flush with ground, 106 B.M. (Type C) feet W. of Jerruck-Kotri road, 168 feet and 254°, 140 feet and 248° and 155 feet and 24° from NW., NE. and SE. corners respectively of an old <i>ganj-i-Shahidān</i> (Martyrs' tomb) of Sultān Mahmūd Ghaznavi's comrades, about 3½ furlongs and 183° from a mosque in <i>goth</i> Umar Arbāb and about 2½ furlongs N. of milestone Jerruck 8, Kotri 16. The bench mark is protec- ted by a hollow masonry pillar 2 feet square and covered by a stone slab bearing the inscription G.T. Survey B.O.M., the height of Upper Mark which above the bench mark is 1.039 feet.	59.503
483	1.75	B.O.M. on top of milestone Jerruck 10, Kotri 14, on W. edge of Jerruck-Kotri road, about 3 furlongs N. of Aungar village.	73.307
484	1.62	G.T.S. on outcropping rock, on a small rising ground, 100 B.M. feet W. of bifurcation of cart-track to N. side, about 396 feet N. of hillock, about 3 furlongs N. of milestone Jerruck 11, Kotri 13 and about 2 furlongs N. of Hāji Māku Babbar village.	59.593
485	2.64	B.O.M. on top of milestone Jerruck 14, Kotri 10, on SE. edge of Jerruck-Kotri road.	63.902
486	1.98	G.T.S. on top of milestone Jerruck 16, Kotri 8, on ESE. B.M. edge of Jerruck-Kotri road.	76.306
487	1.03	B.O.M. on top of milestone Jerruck 17, Kotri 7, on ESE. edge of Jerruck-Kotri road.	77.071

## Bench marks falling in Degree Sheet 40 C

Number in Sheet 40 C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 101 (Karachi to Khanpur). [Section Karachi-Kotri revised in 1924-26].	feet
488	1.05	B.O.M. on top of milestone Jerruck 18, Kotri 6, on ESE. edge of Jerruck-Kotri road.	81.222
489	1.02	B.O.M. on top of milestone Jerruck 19, Kotri 5, on ESE. edge of Jerruck-Kotri road.	80.585
490	0.91	B.O.M. on top of milestone Jerruck 20, Kotri 4, on ESE. edge of Jerruck-Kotri road.	76.794
491	2.21	G.T.S. O B.M. on top of milestone Jerruck 22, Kotri 2, on ESE. edge of Jerruck-Kotri road.	64.551
492	1.14	G.T.S. O B.M. on zinc plate fixed to the root of a <i>kikar</i> tree on W. edge of Jerruck-Kotri road, about a mile S. of Kotri and 241 feet N. of a Municipal lamp-post and 257 feet N. of NW. corner of Government Central Distillery, Kotri.	64.452
493	0.31	G.T.S. O B.M. on centre of semi-circular stone coping of W. parapet wall of bridge over Rasi wāh near Toll office, Kotri.	70.878
494 (213)	0.59	G.T.S. O B.M. on stone coping at its N. end of 2nd step (from bottom) of flight of steps leading to the main entrance of district bungalow, Kotri.	66.313 8
39	0.14	Top of wooden water-gauge on Indus river (right bank) at Kotri, about 86 feet E. of B. M. 38/40 C.	66.084 8
495 (214) (38)	0.04	<div style="border: 1px solid black; padding: 5px; display: inline-block;">           Zero of Kotri Gauge 24.190 Feet ↑ Below this stone         </div> at Kotri, on stone slab embedded in a block of masonry on Indus river right bank E. of the office of Assistant Engineer, Indus River Commission. (P.W.D. bench mark).	66.648 8
496 (215) (35)	0.30	G.T.S. H.F.L. 56.90  B.M. on stone slab embedded in a masonry pillar flush with ground level, near N.W.R. Flotilla office, Kotri. It is 10 feet from cabled wall on river bank, 167 feet from the most westerly pier of Indus river bridge and 76 feet from N. end of office. (Railway bench mark).	65.265 8

\* Old value found correct in 1924-26.

8 Revised value from the levelling of 1924-26.

Bench marks falling in Degree Sheet 40 C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 101 (Karachi to Khanpur). [Section Karachi-Kotri revised in 1924-26].	feet
210	0.82	G.T.S. □ (Type B) B.M. A.D. 1920 at Kotri. Interred about 2 feet below ground level in compound of the railway hospital adjoining N.E. corner of sweepers' quarters. The distances and bearings of the surrounding objects are: N.E. corner of laboratory adjoining the hospital from north, 100 feet and 178°; centre of road from railway station towards engine-shed, 180 feet east. It is about a furlong S.W. of the Protestant Church and about 88 yards W. of the Traffic Inspector's bungalow. A masonry referring pillar with a stone slab inscribed G.T.S. B.M. stands 8 feet S. of the bench mark. 6 ft.	62.579β
		Note: The foundation is in firm but damp soil and the nearest railway lines are about ¼ mile distant.	
		[Section Hyderabad & Kotri-Jacobabad revised in 1920-21].	
161 pp	0.00	G.T.S. Standard Bench Mark 1907 at St. Thomas's church, Hyderabad. Consists of a stone monolith, 2 feet square at base and 3 feet high, the upper 4 inches being dressed to the form of a frustum of a pyramid terminating in a square of 3½-inch side. The stone rests on a bed of concrete on <i>murum</i> foundation, 6½ feet square and 2½ feet deep, and faced with masonry 5 feet square and 1½ feet deep, top of stone being 2½ feet above ground level. The whole is enclosed by iron railings. It is situated close to E. compound wall, 81½ and 109½ feet respectively from S.E. and N.E. corners of church and 55 feet from centre of E. gate.	96.297
217	1.09	G.T.S. B.M. on stone coping, at its W. end, of 5th step from bottom and level with the pavement floor of front or S. entrance to the eastern wing of Agriculture Institute, Hyderabad.	67.062
33	0.54	G.T.S. B.M. on N.E. cap of bridge, near telegraph post No. 110/20.	82.164

## Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<b>Main-Line 101 (Karachi to Khanpur).</b> [Section Hyderabad & Kotri-Jacobabad revised in 1920-21].	feet
216	0.70	G.T.S. on stone coping of S. veranda of E. wing of Thakur B.M. Dass' bungalow, E. of the flight of steps leading to the bungalow, 22 feet 2 inches, 9 feet 7 inches and 14 feet 6 inches from NE., NW., and SW. corners respectively of water tank on N. side of Gidu Bundar road in Gidu Bundar.	66.087
84	0.78	G.T.S. at Gidu Bundar bridge, Kotri. On SE. end of B.M. abutment at Gidu Bundar end of bridge across the Indus river at Kotri.	90.026
215 (85)	0.51	H.F.L. 66-80 1894 near Flotilla office, Kotri. At N.W.R. Flotilla office, Kotri. Situated 76 feet from N. end of office, 10 feet from cabled wall on river bank and 167 feet from the most westerly pier of Indus river bridge. (Railway bench mark).	65.2938
89	0.30	Top of wooden water-gauge at Kotri. A wooden water-gauge on Indus river bank at Kotri, about 22 yards E. of B.M. 214/40C. (38)	66.084
214 (88)	0.04	Zero of Kotri gauge 24-100 Feet Below this stone at Kotri. On stone embedded on river bank E. of Indus River Commission office (P.W.D. bench mark).	66.6748
213	0.14	G.T.S. on stone coping, at its N. end, of 2nd step (from B.M. bottom) of flight of steps leading to the main entrance of district bungalow, Kotri.  Note: Bench mark No. 212 was reported destroyed in 1928.	66.842
211	1.16	G.T.S. on brick flooring, against wall of N. veranda of B.M. refreshment rooms, between the 3rd and 4th entrances from the east and opposite the 4th pillar from east of Kotri railway station.	69.121
210	0.87	G.T.S. □ (Type B) at Kotri. Embedded about 2 feet B.M. below ground level in compound of the A.D. 1920 railway hospital adjoining sweepers' quarters. The distances and bearings	62.579

\* Revised value from the levelling of 1920-21.

Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 101 (Karachi to Khanpur). [Section Hyderabad & Kotri-Jacobabad revised in 1920-21].	feet
210	(Contd.)	of the surrounding objects are: N.E. corner of laboratory adjoining the hospital from north 100 feet and $178^{\circ}$ ; centre of road from railway station towards engine-shed 180 feet E. It is about a furlong SW. of the Protestant Church and about 88 yards W. of the Traffic Inspector's bungalow. A masonry referring pillar with a stone slab inscribed <sup>G.T.S.</sup> B.M. 11 stands 8 feet E. of the bench mark.	62.579
209	0.73	<sup>G.T.S.</sup> B.M. on lower end of N.E. abutment of railway bridge No. 215, about 50 feet N. of telegraph post No. 1/5 on the Kotri-Dadu section.	61.544
208	1.25	<sup>G.T.S.</sup> B.M. on stone coping of lower end of N.E. abutment of railway bridge No. 219 between telegraph posts Nos. 2/11 and 2/12.	65.187
207	1.13	<sup>G.T.S.</sup> B.M. on stone coping of lower end of NW. abutment of railway bridge No. 227 opposite telegraph post No. 3/14.	64.086
206	0.88	<sup>G.T.S.</sup> B.M. on stone coping of lower end of N.E. abutment of railway bridge No. 234 between telegraph posts Nos. 4/10 and 4/11.	67.866
205*	1.27	<sup>G.T.S.</sup> B.M. on N.E. abutment, at its slope, of railway culvert No. 247, between telegraph posts Nos. 5/17 and 5/18.	78.641
204	0.84	<sup>G.T.S.</sup> B.M. on stone coping of S.E. abutment, at its lower end, of railway bridge No. 253 over the Majeri nadi between telegraph posts Nos. 6/14 and 6/15.	88.257
203	1.38	<sup>G.T.S.</sup> B.M. on stone coping of W. parapet of railway bridge No. 256 between telegraph posts Nos. 7/22 and 7/23.	82.063
202	0.95	<sup>G.T.S.</sup> B.M. on stone coping of lower end of S.E. abutment of railway bridge No. 259 between telegraph posts Nos. 8/22 and 8/23.	78.216

\* Reported not found in 1927.



## Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 101 (Karachi to Khanpur). [Section Hyderabad & Kotri-Jacobabad revised in 1920-21].	feet
201	1.18	G.T.S. on stone coping of 1st pier from south, on its B.M. western side of railway bridge No. 264 between telegraph posts Nos. 10/3 and 10/4.	74.784
200*	0.71	G.T.S. on stone coping of 1st pier from south, on its B.M. E. end, of railway girder bridge No. 266 between telegraph posts Nos. 10/20 and 10/21.	79.162
199	1.79	G.T.S. on stone coping of platform of Petaro railway B.M. station, between the station house and the Officers' rest-house and opposite the assistant station master's quarters.	76.103
198	0.57	G.T.S. at Petaro railway station. Embedded about □ (Type B) 2 feet below ground level opposite down A.D. 1920 distant signal and 38 feet S. of the railway line. The distances and bearings of the surrounding objects are: down distant signal 24 feet and $843^{\circ}$ ; telegraph post No. 13/5, 23 feet and $249^{\circ}$ ; iron post with plate painted <div style="border: 1px solid black; padding: 2px; display: inline-block;"> C. No. 73 B = 4000 SE = <math>1\frac{1}{2}</math> S = 5-01 </div> 20 feet and $300^{\circ}$ ; W. end of S. parapet of railway culvert No. 274, 360½ feet and $641^{\circ}$ ; E. end of N. parapet of railway culvert No. 273, 260 feet and $264^{\circ}$ . A masonry referring pillar with stone slab inscribed G.T.S. B.M. stands 9½ feet 6 ft. W. of the bench mark.	74.298
197	1.08	G.T.S. on stone coping of NE. abutment, at its slope, of B.M. railway culvert No. 277 between telegraph posts Nos. 14/7 and 14/8.	80.585
196	0.77	G.T.S. on stone coping of E. parapet of railway bridge B.M. No. 280 between telegraph posts Nos. 15/1 and 15/2.	90.799
195	1.03	G.T.S. on stone coping of SE. abutment, at its slope, of B.M. railway bridge No. 283 between telegraph posts Nos. 16/2 and 16/8 and near mile post No. 16.	97.974

\* Reported not found in 1923.

Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 101 (Karachi to Khanpur). [Section Hyderabad & Kotri-Jacobabad revised in 1920-21].	feet
194	1.38	B.O.M. on stone on the slope of NE. abutment of railway culvert No. 290 between telegraph posts Nos. 17/11 and 17/12.	76.957
193	1.10	G.T.S. on stone coping of top, below the cap. of SE. abutment of railway girder bridge No. 294 between telegraph posts Nos. 18/14 and 18/15.	84.823
192	1.06	G.T.S. on coping of triangular piece of stone on top of the 2nd pier from south, at its E. end of railway girder bridge No. 298 between telegraph posts Nos. 19/13 and 19/14.	83.089
191	0.33	G.T.S. on N. end of 2nd stone step, from bottom, of the flight of steps leading to the station house of Unarpur railway station.	79.925
190	1.29	B.O.M. on stone coping on top of the middle of 3 piers, at its E. end, of railway girder bridge No. 302 between telegraph posts Nos. 21/6 and 21/7.	80.127
189*	1.86	B.O.M. on stone on the slope of SE. abutment of railway culvert No. 305 near telegraph post No. 23/4 and about 30 feet W. of it.	80.998
188	1.82	G.T.S. on brick flooring, close to wall, of front or W. veranda between the two front or western doors of railway officers' rest-house in Budhapur railway station.	81.083
187	0.61	G.T.S. at Budhapur railway station. Embedded (Type D) about 2 feet below ground level opposite down distant signal and E. of the railway line. The distances and bearings of the surrounding objects are: iron post with plate painted <span style="border: 1px solid black; padding: 2px;">Gang 68-69</span> 36½ feet and 225°; down distant signal 24 feet and 242°; telegraph post No. 25/15, 203 feet and 328½°; telegraph post No. 25/14, 16½ feet and 130°. A masonry referring pillar with stone slab inscribed G.T.S. B.M. stands 7½ feet SE. of the bench mark.	76.113

\* Reported not found in 1923.

## LEVELLING OF PRECISION IN INDIA

## Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<b>Main-Line 101 (Karachi to Khanpur).</b> [Section Hyderabad & Kotri-Jacobabad revised in 1920-21].	feet
186*	2.21	B.O.M. on stone on W. edge of railway embankment about 8 feet W. of centre of rails, between telegraph posts Nos. 27/19 and 27/20 and about 71 feet NW. of the former.	84.741
185	0.42	G.T.S. B.M. on stone coping of W. parapet of railway bridge (of two arches) No. 320 between telegraph posts Nos. 28/5 and 28/6 and 78 feet NW. of the former.	90.857
184	0.61	G.T.S. B.M. on stone coping of NE. abutment of railway bridge No. 321 between telegraph posts Nos. 28/19 and 28/20.	93.228
183	0.71	G.T.S. B.M. on stone coping of SE. abutment of railway bridge No. 323 between telegraph posts Nos. 29/12 and 29/13.	93.690
182	0.90	G.T.S. B.M. on top of NW. cap of railway culvert No. 330 between telegraph posts Nos. 30/10 and 30/11.	94.805
181*	0.98	G.T.S. B.M. on top of SW. abutment, at its slope, of railway culvert No. 339 between telegraph posts Nos. 31/9 and 31/10.	92.144
180*	1.06	G.T.S. B.M. on SE. abutment of railway bridge No. 349 between telegraph posts Nos. 32/12 and 32/13.	91.977
179	0.89	G.T.S. B.M. on stone coping of top of the 4th pier from south at its W. projection, of railway girder bridge No. 358 between telegraph posts Nos. 33/8 and 33/9.	91.476
178	1.08	G.T.S. B.M. on stone coping of dais between the station house and the platform of Gopāng railway station.	102.355
177	0.66	G.T.S. □ (Type B) B.M. A.D. 1920 at Gopāng railway station. Embedded about 2 feet below ground level opposite down distant signal and 44 feet from centre of rails. The distances and bearings of the surrounding objects are: down distant signal	101.548

\* Reported not found in 1923.

Bench marks falling in Degree Sheet 40 C

Number in Sheet 40 C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<b>Main-Line 101 (Karachi to Khanpur).</b> [Section Hyderabad & Kotri-Jacobabad revised in 1920-21].	feet
177	(Contd.)	19 feet and 257 <sup>5</sup> ; telegraph post No. 35/3, 56 feet and 704 <sup>5</sup> ; telegraph post No. 35/4, 162 feet and 354 <sup>5</sup> ; wire fencing 24 feet E. A masonry referring pillar with stone slab G.T.S. inscribed B.M. stands 8 feet N. of the bench mark. 6 Ft.	101·548
176	1·26	G.T.S. O. B.M. on stone coping of NE. abutment, below cap, of railway culvert No. 377 between telegraph posts Nos. 36/9 and 36/10.	93·483
175	0·71	B.O.M. on top of W. parapet wall of culvert No. 384 between telegraph posts Nos. 37/2 and 37/3.	94·379
174	1·06	G.T.S. O. B.M. on stone coping of lower portion of SE. abutment of railway culvert No. 387 between telegraph posts Nos. 38/3 and 38/4.	91·678
173	0·99	B.O.M. on stone coping of SE. abutment, below cap, of railway bridge No. 395 between telegraph posts Nos. 39/3 and 39/4.	95·430
172	0·82	G.T.S. O. B.M. on stone coping of slope of SW. abutment of railway bridge No. 397 between telegraph posts Nos. 39/23 and 39/24.	93·818
171	0·39	G.T.S. O. B.M. on stone coping of slope of SW. abutment of railway bridge No. 398 between telegraph posts Nos. 40/8 and 40/9.	96·595
		<i>Note: Bench mark No. 170 was reported destroyed in 1925.</i>	
169	2·19	G.T.S. B.M. on brick flooring, against wall, of E. veranda facing the town of Manjhand, between the station master's and telegraph master's rooms at Manjhand railway station.	93·469
168	0·52	G.T.S. O. B.M. (Type B) at Manjhand railway station. Embedded about 2 feet below ground level opposite down distant signal and 90 feet from centre of rails. The distances and bearings of the surrounding objects are: down distant signal	87·220

## LEVELLING OF PRECISION IN INDIA

## Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 101 (Karachi to Khanpur).</b> <i>[Section Hyderabad &amp; Kotri-Jacobabad revised in 1920-21].</i>	<i>feet</i>
168	(Contd.)	85 feet and 230°; telegraph post No. 42/15, 54 feet and 243½°; telegraph post No. 42/14, 213 feet and 159½°; telegraph post No. 42/16, 230 feet and 311°; wire fencing 5 feet. A masonry referring pillar with stone slab inscribed G.T.S. B.M. stands 9½ feet N. of the bench mark. 6 Ft.	87·220
167	0·94	G.T.S. O B.M. on brick coping on slope of NW. abutment of railway bridge No. 399 between telegraph posts Nos. 43/14 and 43/15.	95·340
166	1·95	G.T.S. O B.M. on stone coping on slope of NE. abutment of railway girder bridge No. 400 between telegraph posts Nos. 45/12 and 45/13.	95·810
165*	1·04	G.T.S. O B.M. on brick flooring of veranda at NW. corner of station house at Khuman railway station.	99·192
164	0·05	G.T.S. O B.M. on stone coping of E. wall of water tank at Khuman railway station on W. edge of platform and N. of the station house.	99·853
163	3·00	B.O.M. on NE. parapet of railway culvert No. 403 between telegraph posts Nos. 49/13 and 49/14.	101·591
162	0·77	G.T.S. O B.M. near centre of northern wall, across the rails, of bridge No. 404 between telegraph posts Nos. 50/7 and 50/8.	101·306

Reported not found in 1923.

Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<b>Branch-Line 101 A (Sukkur to Hyderabad).</b> [Section Bandhi-Hyderabad revised in 1927-28-29, coincident with part of Main-Line 52].	feet
497 (225)	1.21 [From B.M. 223 10 B.]	G.T.S. B.M. on brick on W. cap of S. abutment of railway bridge No. 170, between telegraph posts Nos. 164/20 and 164/19 from Karāchi. ( <i>Revised description</i> ).	84.894 δ
498	0.46	B.O.M. on top of stone pillar embedded close to E. wire-fencing to E. side of railway lines, about 20 feet NE. of telegraph post No. 164/18 from Karāchi and opposite level-crossing lodge No. 164/8.	81.919
219	1.40	G.T.S. B.M. on brick on W. parapet, near its N. end, of railway culvert No. 166, opposite telegraph post No. 162/23 from Karāchi. ( <i>Revised description</i> ).	82.220 β
499	0.80	○ on W. cap of S. abutment of railway bridge No. 163, near telegraph post No. 162/4 from Karāchi.	84.624
500	0.78	B.O.M. on stone slab forming E. parapet of culvert No. 160, between telegraph posts Nos. 161/8 and 161/9 from Karāchi and about 100 feet NE. of level-crossing lodge No. 161/8.	82.063
501	0.92	G.T.S. B.M. on brick on NW. abutment, at its W. end, of railway culvert No. 156, between telegraph posts Nos. 160/11 and 160/10 from Karāchi.	84.235
502	1.05	G.T.S. B.M. on brick on W. cap of S. abutment of railway bridge No. 152 over Shāho wāh, between telegraph posts Nos. 159/9 and 159/8 from Karāchi.	86.866
503	0.92	B.O.M. on brick on W. inner wall projection of S. ash-pit at Shāhdādpur railway station, 5 feet 3 inches E. of S. water-column and 9½ feet S. of N. end of the ash-pit.	81.842
		<i>Note: From this point emanates a branch-line.</i>	
504	0.56	G.T.S. B.M. on brick flooring of platform adjoining veranda at S. or main entrance to R.C.C. 1st class inspection bungalow, Shāhdādpur, 4 feet W. of W. pillar of central arch of the veranda.	83.048

δ Old value found correct in 1927-28-29.

β Revised value from the levelling of 1927-28-29.

## Bench marks falling in Degree Sheet 40 C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<b>Branch-Line 101 A (Sukkur to Hyderabad).</b>	feet
		[Section Bandhi-Hyderabad revised in 1927-28-29].	
505 <sup>PP</sup>	0.05	○ on top of stone monolith 1 foot square at base and 9 inches high, the upper 3 inches being dressed to the form of a frustum of a pyramid terminating in a square of 4-inch side. It is situated in the compound of R.C.C. 1st class inspection bungalow, Shāhdādpur and is 287 feet and 288 feet from SE. and SW. corners respectively of the bungalow, 90 feet 8 inches from SE. corner post of the compound-fencing and 19 feet 4 inches due N. of compound-fencing.	80.429
		<i>Note: The branch-line ends here.</i>	
506	0.44 [From B.M. 503]	G.T.S. B.M. on brick on W. cap of S. abutment of railway bridge No. 147 over Jām wāh, about 15 feet N. of mile-plate No. 158 from Karāchi.	87.037
507	1.99	B.O.M. on brick on NW. return-wall of railway bridge No. 189, 52 feet N. of mile-plate No. 156 from Karāchi.	77.491
508	0.88	G.T.S. B.M. on brick on W. cap of S. abutment of railway bridge No. 130, between telegraph posts Nos. 155/4 and 155/3 from Karāchi.	81.955
509	1.38	G.T.S. B.M. on brick on middle cap of N. abutment of railway bridge No. 132, between telegraph posts Nos. 153/19 and 153/18 from Karāchi.	80.467
510	2.06	G.T.S. B.M. on brick on W. parapet, at its middle, of railway bridge No. 131, between telegraph posts Nos. 151/17 and 151/16 from Karāchi.	79.127
511	1.37	G.T.S. B.M. on brick on W. parapet, at its middle, of railway bridge No. 128, between telegraph posts Nos. 150/8 and 150/7 from Karāchi.	80.507
512	1.69	G.T.S. B.M. on brick on W. parapet, at its middle, of railway bridge No. 126, between telegraph posts Nos. 148/15 and 148/14 from Karāchi.	79.805

Bench marks falling in Degree Sheet 40 C

Number in Sheet 40 C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Branch-Line 101 A (Sukkur to Hyderabad).</b> [Section Bandhi-Hyderabad revised in 1927-28-29].	<i>feet</i>
513	0.78	B.O.M. on W. cap of N. abutment of railway culvert No. 124, opposite telegraph post No. 147/20 from Karūchi.  <i>Note: From this point emanates a branch-line.</i>	78.795
514	0.88	○ on top of stone monolith 1 foot square at base and 1 foot 3 inches high, the upper 4 inches being dressed to the form of a frustum of a pyramid terminating in a square of 4-inch side. It is built in a <i>pakka</i> platform 2½ feet square and flush with the ground level. It is situated to NW. of compound of Subdivisional officers' rest-house Tando Adam and is enclosed by a mud wall 8' x 8' x 2½'. The distances and bearings of the surrounding objects are: SW. corner of rest-house 278 feet and 144°; NW. corner of stables 182½ feet and 132°; northernmost signal of Tando Adam railway station 287°. The letters B. & M. are engraved on the S. side of the monolith. The rest-house is about ¾ mile to NE. of Tando Adam railway station.  <i>Note: The branch-line ends here.</i>	76.618
78rr	1.04 [from B.M. 513]	G.T.S. at Tando Adam railway station. Embedded in N. end of main station platform. Consists of a stone slab fixed to the upper surface of a block of masonry 4 feet by 4 feet and is 3 inches below platform level. The distances and bearings of the surrounding objects are: NE. corner of main station building 231 feet and 184°; wooden paling of platform enclosure 19 feet W.; centre of <i>pakka</i> well of the railway water pumping station 264 feet and 327°; NW. corner of wooden paling of platform enclosure 216 feet 6 inches and 355°; NE. corner of same 216 feet and 2°; edge of main platform 19 feet E.; telegraph post No. 146/22 from Karūchi 224 feet 9 inches and 104°. ( <i>Revised description</i> ).	77.377β
515	0.05	G.T.S. on brick flooring of E. veranda of Tando Adam railway station, against E. wall of main station building and about 3 feet N. of 1st and 2nd class waiting room door.	77.707



## Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Branch-Line 101 A (Sukkur to Hyderabad).</b> [Section Bandhi-Hyderabad revised in 1927-28-29].	<i>feet</i>
516	0.52	B.O.M. on brick near S. end of W. parapet of railway culvert No. 123, between telegraph posts Nos. 146/9 and 146/8 from Karāchi and about $\frac{1}{2}$ mile S. of Tando Adam railway station.	72.243
517	1.25	G.T.S. B.M. on brick on middle cap of N. abutment of railway bridge No. 120 over Sangro <i>wāh</i> large, between telegraph posts Nos. 144/25 and 144/24 from Karāchi.	83.594
518	1.88	G.T.S. B.M. on brick on middle cap of 1st pier from north and 2nd pier from south of railway bridge No. 117, between telegraph posts Nos. 143/8 and 143/2 from Karāchi.	80.097
519	1.28	B.O.M. on brick on W. parapet of railway bridge No. 114, between telegraph posts Nos. 141/20 and 141/19 from Karāchi.	74.119
520	1.09	B.O.M. on brick on N. cap of W. abutment of railway bridge No. 107 between telegraph posts Nos. 140/17 and 140/16 from Karāchi.	79.409
521	2.86	G.T.S. B.M. on brick on middle cap of N. abutment of railway bridge No. 91 over Khal Kāh <i>wāh</i> opposite telegraph post No. 137/19 from Karāchi.	79.886
522	0.62	B.O.M. on brick on middle cap of S. abutment of railway bridge No. 85 over a minor between telegraph posts Nos. 137/4 and 137/3 from Karāchi.	79.801
523	0.20	G.T.S. B.M. 1924 (Musto Type) in the extreme NW. corner of the compound of P.W.D. inspection bungalow, Oderolal railway station. Consists of a monolith made of homogeneous moulded mass of concrete in cement, $1\frac{1}{2}$ feet square at base and 15 inches high, the upper $7\frac{1}{2}$ inches being shaped to the form of a frustum of a pyramid terminating in a square of $5\frac{1}{2}$ -inch side. The monolith rests on a bed of concrete; above the concrete the monolith is enclosed within brick masonry, cemented on top, $2\frac{1}{2}$ feet square and 2 inches above ground level. Letters G.T.S. are B.M. are	78.756

Bench marks falling in Degree Sheet 40 C

Number in Sheet 40 C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Branch-Line 101 A (Sukkur to Hyderabad). [ Section Bandhi-Hyderabad revised in 1927-28-29 ].	feet
523	(Contd.)	inscribed on S. sloping face of the monolith and the year of construction 1924 on its S. vertical face. On E. side of the masonry surrounding the monolith is a projection of cemented brick masonry 2½ feet by 15 inches flush with ground level. The whole is enclosed by a mud wall 10 feet square and 2½ feet high. The distances and bearings of the surrounding objects are: NE. corner of P. W. D. inspection bungalow 373 feet 2 inches and 183°; NW. corner of same 334 feet and 190°; railway telegraph post No. 136/25 from Karāchi 253 feet and 320°; NW. corner of the compound wall of bungalow 19 feet and 6°; mile-stone Oderolal 5, Hāla Haveli 4, on E. side of Hāla-Tando Alāhyār road, 86 feet and 29°.	73·756
524	0·32	B.O.M. on brick on N. end of 1st or lowest step at main or E. entrance to Oderolal railway station.	78·494
525	0·13	B.O.M. on E. projected inner plinth of S. ash-pit of Oderolal railway station, about 6 inches above the bed of same, 10 feet SE. of S. water-column, 11 feet 7 inches S. of NE. end of the ash-pit, 115 feet N. of eastern or down-line starting signal No. 6, and 19 feet W. of edge of goods platform.	75·278
526	1·04	B.O.M. on brick on middle cap of N. abutment of railway culvert No. 82, opposite telegraph post No. 135/11 from Karāchi.	77·327
527	1·37	<sup>1</sup> B.O.M. on brick on E. parapet of railway bridge No. 77, between telegraph posts Nos. 134/3 and 134/2 from Karāchi.	74·276
528	1·53	<sup>1</sup> B.O.M. on brick on W. cap of 1st pier from N. or 2nd pier from S. of railway bridge No. 76 over Ghallu wāh, between telegraph posts Nos. 132/12 and 132/11 from Karāchi.	82·380
529	0·63	B.O.M. on brick on E. curb of well, about 130 feet E. of the railway lines, 30 feet S. of SW. corner of menials' quarters and about 25 feet N. of NW. corner of station master's quarters, Palijāni railway station.	75·729

## Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Branch-Line 101A (Sukkur to Hyderabad). [Section Bandhi-Hyderabad revised in 1927-28-29].	feet
580	0.07	G.T.S. on brick coping of western platform above ramp B.M. of Paljāni railway station, opposite telegraph post No. 181/21 and 259 feet from N.E. corner of main building.	78.471
581	0.58	G.T.S. on brick on W. parapet, 13½ feet N. of its S. end, B.M. of railway bridge No. 78, opposite telegraph post No. 181/18 from Karāchi and about 100 feet SW. of S. home signal No. 7 of Paljāni railway station.	78.759
582	0.83	O. on top of stone pillar embedded in the ground, on B.M. W. side of railway lines, about 10 feet W. of western line rails, about 100 feet N. of level- crossing lodge No. 180/15 between telegraph posts Nos. 180/15 and 180/16 from Karāchi.	77.223
583	0.17	G.T.S. (Musto Type) near Sohān village, about 1½ miles B.M. SW. of Paljāni railway station. Consists of a 1924 monolith made of homogeneous moulded mass of concrete in cement, 1½ feet square at base and 15 inches high, the upper 7½ inches being moulded to the form of a frustum of a pyramid terminating in a square of 5½-inch side. The monolith rests on a bed of concrete; above the concrete the monolith is enclosed within brick masonry, cemented on top, 2½ feet square and 2 inches above ground level. Letters G.T.S. B.M. are inscribed on W. sloping face of the monolith and the year of construction 1924 on its W. vertical face. On E. side of the masonry surrounding the monolith, is a projec- tion of cemented brick masonry 2½ feet by 15 inches and 9 inches deep flush with ground level. The whole is enclosed by a mud wall 10 feet square and 2½ feet high. The distances and bearings of the surrounding objects are: centre of road from Sohān village 232 feet; NNW. corner of level-crossing lodge No. 180/15, 695 feet and 81½°; railway telegraph post No. 180/18 from Karāchi 652 feet and 118°.	72.927
584	0.12	G.T.S. on stone slab let into W. parapet, near its S. end, B.M. of railway bridge No. 70, between telegraph posts Nos. 180/18 and 180/12 from Karāchi.	72.400

Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Branch-Line 101 A (Sukkur to Hyderabad). [Section Bandhi-Hyderabad revised in 1927-28-29].	feet
535	2.45	$\begin{smallmatrix} \text{O.T.S.} \\ \text{B.M.} \end{smallmatrix}$ on brick on W. cap of N. abutment of railway bridge No. 64 over Nasir wāh, between telegraph posts Nos. 128/3 and 128/2 from Karachi.	81.953
536	0.97	$\begin{smallmatrix} \text{O.T.S.} \\ \text{B.M.} \end{smallmatrix}$ on brick on W. cap of S. abutment of railway bridge No. 60, opposite telegraph post No. 127/3 from Karachi and about 50 feet NW. of N. home signal of Allāhdino Sānd railway station.	73.409
537	0.31	$\begin{smallmatrix} \text{O.T.S.} \\ \text{B.M.} \end{smallmatrix}$ on brick on 2nd step from bottom, at its N. end of main exit, against E. wall, of main station building of Allāhdino Sānd railway station.	74.798
538	1.13	$\text{B.O.M.}$ on NW. parapet, near its S. end, of railway culvert, between telegraph posts Nos. 125/17 and 125/16 from Karachi and about 300 feet N. of level-crossing lodge No. 125/15.	71.033
539	0.61	$\begin{smallmatrix} \text{O.T.S.} \\ \text{B.M.} \end{smallmatrix}$ on brick on W. wing-wall, about 4 feet S. of its N. end, of railway bridge over Sarfarāz wāh, between telegraph posts Nos. 125/1 and 125/2 from Karachi.	81.566
540	3.24	$\begin{smallmatrix} \text{O.T.S.} \\ \text{B.M.} \end{smallmatrix}$ on brick on W. cap of S. abutment of railway bridge over a minor, opposite telegraph post No. 121/18 from Karachi.	69.711
541	2.27	$\begin{smallmatrix} \text{O.T.S.} \\ \text{B.M.} \end{smallmatrix}$ on brick on top of central pier, at its middle, of railway bridge over a minor, between telegraph posts Nos. 119/10 and 119/11 from Karachi.	66.454
542	0.86	$\begin{smallmatrix} \text{O.T.S.} \\ \text{B.M.} \end{smallmatrix}$ on brick on NW. abutment, near its middle, about 2 feet below rail level, of railway skew-bridge over Sind wāh and opposite telegraph post No. 116/15 from Karachi.	68.407
543	0.86	$\text{B.O.M.}$ on brick on W. plinth of Detha railway station building, 9 feet SE. of its NW. corner and 3 feet NW. of wooden paling of platform enclosure against NW. wall of station building.	68.834

## Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-level
	miles	<b>Branch-Line 101 A (Sukkur to Hyderabad).</b> [Section Bandhi-Hyderabad revised in 1927-28-29].	feet
544	2.27	B.O.M. on brick on N. cornice, at its middle, 4 inches below N. parapet, of railway bridge over a drain, opposite telegraph post No. 115/11 from Karachi and about 300 feet NE. of Rahim Khān Unār village.	65.850
52	1.11	G.T.S. on brick on top of second pier from N. or fourth B.M. from S., at its E. cap, about 8 feet from centre of south or up-line rails (standard gauge), of N. W. railway bridge over Fulell canal and 704 yards NE. of mile-plate No. 114 from Karachi. (Revised description).	78.019 $\beta$
545	1.14	S B.M. at Hyderabad junction railway station. Embedded in NE. end of E. wing of veranda flooring, flush with its upper surface, 27 feet from NW. corner and 48 feet from SW. corner of inward parcel office and 12 feet 8 inches from NE. corner of tea room.	67.452
157	0.84	G.T.S. on stone paving under third arch from W. of W. B.M. wing at N. face of Nawa Vidyālaya high school opposite kachhri, Hyderabad. (Revised description).	90.950 $\beta$
546	0.08	G.T.S. on stone pavement under sixth arch from E. of S. B.M. veranda of kachhri, Hyderabad.	105.999
31	0.08	P.W.D. at kachhri, Hyderabad. Embedded in a block B.M. 1898 of stone masonry 4 feet square and 1 foot high, 22½ feet S. of SW. corner of Judge's court; 152½ feet E. of W. gate of the compound, 41½ feet NE. of NW. corner of Deputy Collector's court. (Revised description). (P.W.D. bench mark).	104.161 $\beta$
159	0.16	O B.M. on stone plinth under second arch from W. of N. face of western of the two travellers' bungalows, Hyderabad.	95.755 $\beta$
160	0.37	G.T.S. on stone sill of northern door of E. face of St. B.M. Thomas' church, Hyderabad.	96.922 $\beta$

 $\beta$  Old value found correct in 1927-28-29.

Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<b>Branch-Line 101 A (Sukkur to Hyderabad).</b> [Section Bandhi-Hyderabad revised in 1927-28-29].	feet
161rr	0.06	G.T.S. at St. Thomas' church, Hyderabad Standard Bench Mark (Sind). Consists of a stone monolith 1927 2 feet square at base and 3 feet high, the upper 4 inches being dressed to the form of a frustum of a pyramid terminating in a square of 3½-inch side. The stone rests on a bed of concrete on murum foundation, 6½ feet square and 2½ feet deep; above the concrete the monolith is enclosed within masonry 5 feet square and 1½ feet high, the upper surface of the monolith being 2½ feet above ground level. It is surrounded by iron railings and is situated close to E. compound wall. It is 91½ feet and 115° and 109½ feet and 147° respectively from SE. and NE. corners of the church, and 65 feet from centre of E. gate.	96.297β
		<i>Note: From this point emanate three branch-lines.</i> (i) to Training school, Hyderabad. (ii) to bridge No. 7 over Hyderabad-Gidu Bandar road. (iii) to Ganjo Takkar hill. (i) Branch-line to Training school.	
414 (155)	1.35	G.T.S. on SE. end of third stone step counting from bottom B.M. of S. or main entrance to civil hospital and medi- cal school, Hyderabad.	115.491β
156	0.09	G.T.S. on SE. end of SW. veranda of Metha Rām hall B.M. used as library at Government high school, Hyderabad.	115.857β
154	0.17	G.T.S. on N. end of third stone step, counting from bottom, B.M. at N. face of clock tower of Training college (main), Hyderabad.	117.568β
		<i>Note: Branch-line (i) ends here.</i> (ii) Branch-line to bridge No. 7.	
217	1.07 [From B.M. 161]	G.T.S. at W. end of fifth stone step from bottom of a B.M. flight of steps leading to the survey class room of Tappadare training school, Hyderabad. (Revised description).	67.062β

β Old value found correct in 1927-28-29.

B Revised value of 1924-26 found correct in 1927-28-29.

## LEVELLING OF PRECISION IN INDIA

## Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Branch-Line 101 A (Sukkur to Hyderabad). [Section Bandhi-Hyderabad revised in 1927-28-29].	feet
33	0.52	G.T.S. on NE. cap of railway bridge No. 7 over Hyderabad-B.M. Gidu Bandar road, near telegraph post No. 110/20 from Karachi. (Revised description).	82.164 $\beta$
		Note: Branch-line (ii) ends here. (iii) Branch-line to Ganjo Takkar hill.	
416	1.08 [from B.M. 161]	B.O.M. on brick on NW. parapet, at its S. end, of railway culvert No. 17, opposite combined goods and trans-shipment office No. 87 of N. W. and Jodhpur rail-ways, about $\frac{1}{4}$ mile SW. of Hyderabad railway station, and about a furlong W. of mile-plate No. 113 from Karachi.	66.095 $\beta$
417	0.17	B.O.M. on stone at base at pavement of W. water-column about 5 feet W. of same, opposite railway tank No. 54, about 250 feet E. of mile-plate No. 113 from Karachi and about $1\frac{1}{2}$ furlongs S. of Hyderabad railway station.	65.749 $\beta$
418	0.73	B.O.M. on stone step, fourth from bottom, at S. side of water <i>piñto</i> bearing the inscription "Erected by Rai Bahadur Seth Mohandas Menghrāj" on S. side of Hyderabad-Badin road, about a furlong E. of milestone Hyderabad 1, Badin 61.	64.340 $\beta$
419	1.15	S.M. on stone military boundary pillar, embedded at extreme NW. corner of Ganjo Takkar hill 125 $\frac{1}{2}$ feet from SW. corner of Muhammad Khyree Kubba (Kubba Bibi Khabar), 123 $\frac{1}{2}$ feet W. of B.M. 152.	127.506 $\beta$
152pp	0.02	S.M. (Type C) on rock in situ on top of Ganjo Takkar hill, close to a graveyard with Muhammad Khyree Kubba (Kubba Bibi Khabar) and within military limits. It is 155 feet and bears 186° from W. corner of the Kubba and 35 feet and 233° from S. corner of mud wall surrounding the graveyard, and is protected by a hollow masonry pillar 2 feet square and 2 feet high bearing the inscription G.T. Survey B.O.M. the height of which above the bench Upper Mark mark is 1.679 feet.	128.461 $\beta$
		Note: Branch-line (iii) ends here.	

 $\beta$  Old value found correct in 1927-28-29.

Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 150 (Kotri to Barmer).</b>	<i>feet</i>
210	0-00	<p>G.T.S. B.M. A.D. 1920</p> <p>(Type B) at Kotri. Interred about 2 feet below ground level in compound of the railway hospital adjoining sweeper's quarters. The distances and bearings of the surrounding objects are: NE. corner of Laboratory adjoining the hospital from north 100 feet and 178°; centre of road from the railway station towards engine-shed 180 feet east. It is about a furlong SW. of the Protestant Church and about 88 yards W. of the traffic inspector's bungalow. A masonry referring pillar with stone slab inscribed stands 8 feet E. of the bench mark.</p> <p><i>Note: The foundation is in firm soil and the nearest railway lines are about 1/4 mile distant.</i></p>	62-579 $\beta$
211	0-29	<p>G.T.S. B.M.</p> <p>on brick flooring, against wall, of N. veranda of refreshment rooms, between the third and fourth entrances from the east, and opposite the fourth pillar from east of Kotri railway station.</p>	69-121 $\beta$
412	0-95	<p>B.O.M.</p> <p>on stone on which S. gateway hinges rest, S. of railway lines, at SW. end of railway bridge on Indus river and opposite telegraph post No. 108/24 from Karachi.</p>	88-906
34	0-59	<p>G.T.S. B.M.</p> <p>on SE. end of NE. abutment of railway bridge on Indus river at Kotri.</p>	90-026 $\beta$
413 (216)	0-78	<p>G.T.S. B.M.</p> <p>on stone coping of S. veranda of E. wing of Gopāl Dās' house, E. of the flight of steps leading to the house, 22 feet 2 inches, 9 feet 7 inches and 14 feet 6 inches from NE., NW. and SW. corners respectively of Topan Dās' <i>piāo</i> on N. side of Gidu Bandar road in Gidu Bandar.</p>	66-067 $\delta$
33	0-68	<p>G.T.S. B.M.</p> <p>on NE. cap of railway bridge No. 7 over Hyderabad-Gidu Bandar road, near telegraph post No. 110/20 from Karachi.</p>	82-164 $\beta$
217	0-51	<p>G.T.S. B.M.</p> <p>at W. end of fifth stone step from bottom of a flight of steps leading to the survey class room of Tappadars training school, Hyderabad.</p>	67-062 $\beta$

$\beta$  Old value found correct in 1924-26.

$\delta$  Revised value from the levelling of 1924-26.



## Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 150 (Kotri to Barmer).	feet
161rr	1.06	G.T.S. at St. Thomas church, Hyderabad, Standard Bench Mark 1907 see page 53.	96.297 $\beta$
		<i>Note: From this point emanates a branch-line to clock tower of training college, Hyderabad.</i>	
414 (155)	1.40	G.T.S. on SE. end of third stone step, see page 53. B.M.	115.491 $\delta$
156	0.10	G.T.S. on SE. end of SW. veranda, see page 53. B.M.	115.857 $\beta$
154	0.16	G.T.S. on N. end of second stone step, see page 53. B.M.	117.568 $\beta$
		<i>Note: The branch-line ends here.</i>	
415	0.10 [from B.M. 161]	G.T.S. on brick on masonry seat (for travellers) against B.M. stone slab bearing the inscription "Erected by Ganga Rām Tilok Chand" on NW. side of road to Kotri, about 50 feet SW. of milestone bearing Fort (Hyderabad), Gidu Bandar, mile 1 miles 2 yards 770 near and SE. of St. Thomas Church, Hyderabad.	69.586
416	0.95	B.O.M. on brick on NW. parapet, see page 54.	66.095
417	0.17	B.O.M. on stone at base pavement of W. water column, see page 54.	65.749
418	0.74	B.O.M. on stone step, see page 54.	64.340
419	0.99	B.M. on top of stone military boundary pillar, see page 54.	127.506
152rr	0.04	B.M. (Type C) on rock in situ on top of Ganjo Takkar hill, see page 54.	128.461 $\beta$

 $\delta$  Old value found correct in 1924-26. $\beta$  Revised value from the levelling of 1924-26.


Bench marks falling in Degree Sheet 40 C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 150 (Kotri to Barmer).	feet
420 (27)	0.60	G.T.S. B.M. on stone slab let into middle of W. parapet of railway bridge No. 3. on Hyderabad-Badin railway line opposite telegraph post No. 1/24 from Hyderabad.	65.3878
421	1.66	G.T.S. B.M. on brick parapet near its N. end of SW. wing-wall of Jodhpur railway bridge No. 138 over Fuleli canal. opposite telegraph post No. 464/17 from Kuchāwan Road and about 1½ miles NE. of Hyderabad railway station.	83.520
422	1.13	135 B.O.M. on stone embedded in NW. wing-wall of Jodhpur railway bridge No. 135, opposite telegraph post No. 463/16 from Kuchāwan Road.	65.800
423*	1.33	G.T.S. B.M. on brick on NW. abutment, near its SW. end, 2 feet below rail level, of Jodhpur railway bridge No. 134 over a minor, opposite telegraph post No. 462/8 from Kuchāwan Road.	66.948
424 (398)	0.94	B.O.M. on brick on NW. plinth of Detha N. W. railway station building, 9 feet SE. of NW. corner of same and 3 feet NW. of wooden paling of platform enclosure against NW. wall of station building.	68.7978
425	1.49	126 B.O.M. on stone slab let into N. abutment at its W. side of Jodhpur railway bridge No. 126 over a minor and opposite telegraph post No. 459/21 from Kuchāwan Road.	69.582
426	0.75	G.T.S. [⊗] B.M. A.D. 1924 at Rahūki railway station. Interred (Type B) 183 feet N. of station building and 2½ feet below ground level. The distances and bearings of the surrounding objects are: telegraph post No. 459/4 from Kuchāwan Road 211 feet 8 inches and 124°; NE. corner of station building 192 feet 6 inches and 159°; NW. corner of same 193 feet 6 inches and 167° and centre of main-line rails 134 feet 6 inches S. A rail post with an iron plate bearing letters G.T.S. B.M. stands 4 feet N. of the bench mark. 4 Ft. Note: The foundation is in firm soil and the nearest railway lines are about 120 feet distant.	60.388

8 Revised value from the levelling of 1924-26.

\* Reported not found in 1930.

## Bench marks falling in Degree Sheet 40 C

Number in Sheet 40 C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 150 (Kotri to Barmer).	feet
427*	0.41	B.O.M. on brick on NE. abutment, about 5 feet SE. of its NE. end, about 2 feet below rail level of railway bridge No. 122, opposite telegraph post No. 459/19 from Kuchāwan Road and 726 yards NE. of Rahāki railway station.	63.186
428	1.30	G.T.S. on brick on NE. abutment at its NW. side of railway bridge No. 113, between telegraph posts Nos. 457/11 and 457/12 from Kuchāwan Road.	64.315
429	1.20	G.T.S. on brick on NE. abutment at its SE. end, of railway bridge No. 107, about 2 feet below rail level, opposite telegraph post No. 456/7 from Kuchāwan Road.	66.779
430	0.92	B.O.M. on brick on N. curb of railway well near telegraph post No. 455/9 and about a furlong SW. of Tando Jām railway station.	69.881
431	0.16	G.T.S. at Tando Jām railway station. Interred  (Type B) 153½ feet N. of station building and 2 feet below ground level. The distances and bearings of the surrounding objects are: telegraph post No. 455/4, 333 feet 6 inches and 117°; NE. corner of station building 168 feet and 150°; NW. corner of same 169 feet and 174°; centre of main-line rails 117 feet S. A rail-post with an iron plate bearing letters G.T.S. B.M. stands 3 feet N. of the bench mark. A.O. 1924 4 Ft.	62.550
		<i>Note: The foundation is in firm soil and the nearest railway lines are about 100 feet distant.</i>	
432	1.09	<sup>104</sup> B.O.M. on stone slab let into NE. abutment at its NE. end of railway bridge No. 104, opposite telegraph post No. 454/3 from Kuchāwan Road.	64.982
433	1.16	G.T.S. on brick on SE. abutment, at its SE. side, 2 feet below rail level, of railway bridge No. 100 over a minor, between telegraph posts Nos. 452/22 and 452/23 from Kuchāwan Road.	68.948

\* Reported not found in 1930.

Bench marks falling in Degree Sheet 40 C

Number in Sheet 40 C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 150 (Kotri to Barmer).</b>	<i>feet</i>
434	0.91	G.T.S. B.M. on brick on SW. abutment, at its SW. side, 2 feet below rail level, of railway bridge No. 94 over a minor, between telegraph posts Nos. 452/1 and 452/2 from Kuchāwan Road.	69.155
435	0.50	B.O.M. on brick on SW. parapet at its NE. end of railway bridge No. 89, over Sarfarāz wāh, between telegraph posts Nos. 451/12 and 451/13 from Kuchāwan Road.	76.790
436	0.69	B.O.M. on brick on SW. abutment, at its SE. side, about 3 feet below rail level, of railway bridge No. 86 over Khesano wāh, between telegraph posts Nos. 450/20 and 450/21 from Kuchāwan Road.	72.689
437	0.22	G.T.S. ⊙ (Type B) at Khesano railway station. Interred $\frac{1}{4}$ mile SW. of the station building and 2 feet below ground level. The distances and bearings of the surrounding objects are: W. home signal of the station 148 feet and $350^{\circ}$ ; centre of main-line rails 136 feet N.; telegraph post No. 450/15, 156 feet and $50^{\circ}$ ; telegraph post No. 450/16, 133 feet and $302^{\circ}$ . A rail-post with an iron plate bearing letters B.M. stands 3 feet S. of the bench mark. 4 Ft.	67.312
		<i>Note: The foundation is in firm soil and the nearest railway lines are about 136 feet distant.</i>	
438*	0.21	B.O.M. on brick on S. curb of railway well, about 200 feet SW. of Khesano railway station building.	71.244
439	2.05	G.T.S. B.M. on brick on NE. abutment, at its SE. end, of railway bridge No. 84, opposite telegraph post No. 448/10 from Kuchāwan Road.	69.116
440	0.65	G.T.S. B.M. on brick on SE. abutment, at its SE. side, 2 feet below rail level, of railway bridge No. 83, between telegraph posts Nos. 447/18 and 447/19 from Kuchāwan Road.	67.981
441	1.62	81 B.O.M. on stone slab let into middle of NE. wing-wall of railway bridge No. 81, between telegraph posts Nos. 446/4 and 446/5 from Kuchāwan Road.	68.429

\* Reported not found in 1930.

## LEVELLING OF PRECISION IN INDIA

## Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 150 (Kotri to Barmer).</b>	<i>feet</i>
442	0.86	G.T.S. O B.M. on brick on NE. wing-wall, at its W. side, of railway bridge No. 77 over Sari wāh, opposite telegraph post No. 445/7 from Kuchāwan Road.	69.891
448	1.02	B.O.M. on brick on SE. wing-wall, at its middle, of railway bridge No. 72, opposite telegraph post No. 444/7 from Kuchāwan Road.	66.161
444	0.42	B.O.M. on brick on SE. abutment, at its SE. side, 2 feet below rail level, of railway bridge No. 68, opposite telegraph post No. 443/21 from Kuchāwan Road.	63.713
284	0.89	G.T.S. O B.M. on block of stone fixed in the ground and projecting 1 foot above it, close to SE. corner of P.W.D. subdivisional office, Tando Alāhyār.	62.779 <sup>B</sup>
233	0.03	□ on brick on plinth, under 1st arch from south, of W. veranda of P.W.D. subdivisional office, Tando Alāhyār ( <i>Irrigation bench mark</i> ).	62.744 <sup>B</sup>
445	0.38	G.T.S. ⊗ (Type B) B.M. A.D. 1924 at Tando Alāhyār railway station. Interred 192 feet N. of the station building and 3 feet below ground level. The distances and bearings of the surrounding objects are: NE. corner of station building 205 feet and 154°; NW. corner of same 205 feet and 172°; centre of main-line rails 151 feet S. A rail-post with an iron plate bearing letters G.T.S. B.M. stands 4 feet N. of the bench mark. 4 FT.	61.044
		<i>Note: The foundation is in firm soil and the nearest railway lines are about 122 feet distant.</i>	
446	2.76	B.O.M. on brick on SW. abutment, at its SE. side, about 2 feet below rail level, of railway bridge No. 46, between telegraph posts Nos. 440/5 and 440/6 from Kuchāwan Road.	64.986
447 (231)	0.83	□ on block of stone fixed at centre of plinth of S. parapet of bridge over Ghallu wāh, about 400 feet E. of milestone Mirpur Khās on Mirpur Khās-Hyderabad road. ( <i>Irrigation bench mark</i> ).	68.758 <sup>B</sup>

<sup>A</sup> Old value found correct in 1924-25.

<sup>B</sup> Revised value from the levelling of 1924-25.

Bench marks falling in Degree Sheet 40 C

Number in Sheet 40 C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 150 (Kotri to Barmer).</b>	<i>feet</i>
448	0·21	G.T.S. B.M. on brick on NW. wing-wall, at its NE. end, of railway bridge No. 43, over Ghallu <i>wāh</i> , between telegraph posts Nos. 439/10 and 439/11 from Kuchāwan Road.	69·800
449	1·81	G.T.S. B.M. on brick on NW. abutment, at its NE. side, about 2 feet below rail level, of railway bridge No. 34 and opposite telegraph post No. 437/15 from Kuchāwan Road.	59·922
450 (230)	0·62	□ on block of stone fixed in plinth, at its E. end, of N. parapet of bridge over a minor on Mirpur Khās-Hyderabad road, about a furlong W. of <i>goth</i> Faiz Muhammad Māchi and about 1½ miles E. of Kamaro Sharif railway station. ( <i>Irrigation bench mark</i> ).	63·884 δ
451 (229)	1·39	G.T.S. B.M. on NW. wing-wall of W. abutment of railway bridge No. 29 over Dhoro Khānāl <i>nala</i> between telegraph posts Nos. 435/22 and 435/23 from Kuchāwan Road.	62·941 δ
452	0·90	G.T.S. B.M. on brick on NW. parapet of railway culvert No. 28, between telegraph posts Nos. 435/1 and 435/2 from Kuchāwan Road.	61·913
453	1·25	B.O.M. on brick on NW. parapet of railway bridge No. 27, between telegraph posts Nos. 433/19 and 433/20 from Kuchāwan Road.	60·999
454	0·35	G.T.S. B.M. on brick on masonry base of W. distant signal of Bulghai railway station, between telegraph posts Nos. 433/11 and 433/12 from Kuchāwan Road.	60·248
455 (228)	0·64	Top of iron pipe embedded in a masonry pillar, 2 feet square and 2 feet above ground, 193 feet S. of centre of Bulghai railway station building. ( <i>Irrigation bench mark</i> ).	61·781 δ
456	0·02	G.T.S. B.M. A.D. 1924 at Bulghai railway station. Interred (Type B) 193½ feet S. of station building and 3 feet below ground level. The distances and bearings of the surrounding objects are: telegraph post No. 432/20 from Kuchāwan Road 85 feet	57·597

δ Revised value from the levelling of 1924-26.

## Bench marks falling in Degree Sheet 40C

Number in Sheet 40C	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 105 (Kotri to Barmer).	feet
456	(Contd.)	and 338°; SW. corner of station building 194 feet and 340°; SE. corner of same 194 feet and 351°; centre of main-line rails 147 feet N.; telegraph post No. 432/19 from Kuchāwan Road 200 feet and 50°. A rail-post with an iron plate bearing letters <sup>G.T.S.</sup> B.M. stands 4 feet S. of the bench mark. <sub>4 FT.</sub>	57·597
		<i>Note: The foundation is in firm soil and the nearest railway lines are about 120 feet distant.</i>	
457	0·37	<sup>G.T.S.</sup> on stone slab fixed on NW. abutment, at its W. end, below N. girder, of railway bridge No. 26, opposite telegraph post No. 432/11 from Kuchāwan Road.	57·101
458	0·67	<sup>G.T.S.</sup> on stone on S. cap of SW. abutment of railway bridge No. 24, over Jāmrao canal (west branch), between telegraph posts Nos. 431/18 and 431/19 from Kuchāwan Road.	63·770
459 (227)	0·34	<sup>68·50</sup> <sup>G.T.S. &amp; B.M.</sup> on stone slab on N. parapet of regulator bridge over Jāmrao canal (west branch), at its 17th mile on Mirpur Khās-Hydrābād road.	67·715 δ
460	0·02	□ on stone pillar embedded on top of S. parapet, at its middle, of regulator bridge over Jāmrao canal (west branch), at its 17th mile on Mirpur Khās-Hydrābād road. (Irrigation bench mark).	67·668
461	2·11	<sup>B.O.M.</sup> on brick on SE. parapet, at its middle, of railway culvert No. 22, between telegraph posts Nos. 429/18 and 429/19 from Kuchāwan Road.	54·438
462	0·66	<sup>G.T.S.</sup> on brick on NE. abutment, at its N. side, about 2 feet below rail level, of railway bridge, opposite telegraph post No. 429/3 from Kuchāwan Road.	53·971
463 (226)	1·14	Top of iron pipe embedded in a masonry pillar, 1 foot below ground level, 20 feet N. of centre of railway lines and 2 feet W. of milestone No. 428 from Kuchāwan Road. (Irrigation bench mark).	54·776 δ

δ Revised value from the levelling of 1924-26.

Bench marks falling in Degree Sheet 40 C

Number in Sheet 40 C	Distance from preceding B.M. unless otherwise stated	Description of Bench mark	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 150 ( Kotri to Barmer ).</b>	<i>feet</i>
464	1.28	on brick on NW. parapet of railway culvert No. 12, between telegraph posts Nos. 126.18 and 126/19 from Kuchāwan Road.	52.642
465	0.95	on stone slab let into E. abutment, at its N. side, of railway culvert No. 7, between telegraph posts Nos. 125.19 and 125.20 from Kuchāwan Road.	51.051



## Bench marks falling in Degree Sheet 40 D

Number in Sheet 40 D	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<b>Main-Line 44 (Navanar to Sujawal).</b> [Portion between Nakhtrana Mota-Buhar not revised in Line 104].	feet
1 FP	10.18 [from B.M. 16/41A]	On upper surface of circular pillar of Guni G.T. Survey Tower Station, lat. $24^{\circ} 2' 9'' \cdot 30$ , long. $68^{\circ} 33' 2'' \cdot 82$ . This is a Geodetic station of the Cutch Coast Series and stands in the Rann about 2 miles E. by N. of the <i>Dharm-sāla</i> at Guni village, $1\frac{1}{2}$ miles W. of the road between Sind and Cutch, 7 miles SSE. of the police post or <i>chauki</i> and <i>Dharm-sāla</i> at Vehr and 8 miles NW. of Bulji <i>chauki</i> . It is in <i>tāluka</i> Jāti, sub-division Shāhbandar, district Karāchi. The station consists of a tower of sun-dried bricks, enclosing a perforated pillar of masonry about 24 feet in height of which the upper 5 feet is circular and isolated: an arched aperture on the S. side gives access to the lower mark. When visited by the Levelling Party in 1889-90, the tower of sun-dried bricks had crumbled away, forming a mound of earth encircling the pillar to about half its height, the exposed portion of masonry was slightly eaten away by <i>kalar</i> , but the mark-stone in the upper surface of the pillar was found intact.  <i>Note: From this point emanates a branch-line to Sugandia T.S. (B.M. 16/41A).</i>	29.905
2	7.23	G.T.S. Embedded a few inches below ground level at S.M. Vehr, in centre of E. side of <i>dharm-sāla</i> , about 2 feet from wall and 330 feet from tank. The <i>dharm-sāla</i> is situated in the Rann, 21 miles SE. of Mughalbhin.  <i>Note: From this point emanates a branch-line to Mod T.S.</i>	5.606
3 FP*	4.52	On upper surface of circular pillar of Mod G.T. Survey Tower station, lat. $24^{\circ} 11' 46'' \cdot 92$ , long. $68^{\circ} 31' 11'' \cdot 48$ . This is a Geodetic station of the Cutch Coast Series and stands in a patch of land which had been under cultivation in the Rann, about $4\frac{1}{2}$ miles N. by E. of the police <i>chauki</i> and <i>dharm-sāla</i> at Vehr on the road between Sind and Cutch. It is in <i>tāluka</i> Jāti, sub-division Shāhbandar, district Karāchi. The station consists of a tower of sun-dried bricks enclosing a perforated pillar of masonry 25 feet in height of which the upper 5 feet is circular and isolated: an arched aperture	35.049

\* Reported not found in 1929.

## Bench marks falling in Degree Sheet 40 D

Number in Sheet 40 D	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 44 (Navanar to Sujawal). [Portion between Nakhtrana Mota-Buhar not revised in Line 104].	feet
3 pr*	(Contd.)	gives access to the lower mark. When visited by the Levelling Party in 1889-90, the tower of sun-dried bricks had crumbled away forming a mound of earth about 10 feet in height encircling the pillar.	35·049
		Note: The branch-line ends here.	
4*	12·45 [from B.M. 2/10 D]	G.T.S. Embedded flush with ground level, 17 feet E. of O. stone boundary pillar of village lands of Buhar, B.M. Pahchāri, Karund and Gath, which lie in the dry Rann of Cutch and 286 yards W. of road from Lakhpat to Mughalbhin (Jāti). The letters <sup>18</sup> 89 are cut on E. side of the stone boundary pillar which stands 47 feet W. of the bench mark. (Revised description).	8·213β
		Main-Line 52 (Sujawal to Shikarpur). [Portion between Sujawal and Hyderabad not revised in Line 101 A].	
29	0·00	G.T.S. at Sujawal. Embedded in front veranda of B.M. Mukhtiārkar's <i>kachhri</i> , flush with floor, opposite to gateway, and to left of court room door, immediately below window, 2 feet from wall, and 36 feet from S.E. corner of veranda.	28·782
37	0·09	G.T.S. on E. parapet of Sujawal bridge across Muhammad B.M. wāh, 7 chains NW. of Mukhtiārkar's <i>kachhri</i> .	34·736
		Note: Bench marks Nos. 38 and 39 reported destroyed in 1929.	
40*	3·88	G.T.S. Embedded about 6 inches below ground level, B.M. 40 feet N. of road bridge across Gharhi wāh on Sujawal-Mirpur road, about 4 miles from Sujawal, 42 feet from E. end of N. parapet of bridge, 58 feet from W. end of same parapet, and 47 feet from keystone of arch on N. side.	26·964

\* Reported not found in 1929

β Old value found correct in 1929-27-29.

## Bench marks falling in Degree Sheet 40 D

Number in Sheet 40 D	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 52 (Sujawal to Shikarpur). [Portion between Sujawal and Hyderabad not revised in Line 101 A].	feet
41	4.66 [from B.M. 37]	G.T.S. on top of milestone No. IV from Sujawal and B.M. No. X from Mirpur Batoro.	28.287
42	4.47	G.T.S. on W. parapet of road bridge across Pinyari canal B.M. at Dari, 68 feet from W. end of parapet.	40.418
43	2.71	G.T.S. on stone coping of SE. parapet of bridge across B.M. Mahmuda wāh, 3 miles E. of, Pinyari canal at Dari.	42.901
		Note: Bench mark No. 44 reported destroyed in 1929.	
45	3.09	G.T.S. at Mirpur Batoro. Embedded near SE. corner of B.M. mukhtīārkar's kachahri, 6 inches below ground level, 5 feet from S. wall and 7 feet from E. wall of kachahri, 128 feet from S. corner of police station veranda, 184 feet from centre of E. gate and 86 feet from centre of SW. wall of compound. The letters B.M. are cut on S. wall of kachahri.	28.647
46*	0.08	G.T.S. on top of milestone No. O from Mirpur Batoro B.M. and No. XI from Lailpur, 7 chains E. of Mukhtīārkarate.	32.138
		Note: Bench marks Nos. 47 to 49 reported destroyed in 1929.	
50	7.34	G.T.S. on N. end of W. parapet of bridge across Joyo wāh B.M. at Jhok.	36.074
51	0.35	G.T.S. at Jhok. Embedded 6 inches below ground level, B.M. in grounds adjoining Kalandar Shāh's mausoleum, 60 feet from centre of SE. door, 26 feet from middle of E. door, 29 feet from NE. door leading to mosque, and 8 feet from wall on which inscription B.M. is cut.	36.211
52	3.31	G.T.S. on S. end of 2nd step leading into Pir Sahibno B.M. Shāh's residence at Bulri.	50.215

\* Reported not found in 1929.

Bench marks falling in Degree Sheet 40 D

Number in Sheet 40D	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 52 ( Sujawal to Shikarpur ). [ Portion between Sujawal and Hyderabad not revised in Line 101 A ].	feet
53	0.45	$\begin{smallmatrix} \text{O} \\ \text{B.M.} \end{smallmatrix}$ at stone pillar, on upper surface of P.W.D. bench mark No. 39/1, on E. margin of high road $\frac{3}{4}$ mile from Bulri.	35.620
54	1.26	$\begin{smallmatrix} \text{O} \\ \text{B.M.} \end{smallmatrix}$ at stone pillar, on upper surface of P.W.D. bench mark No. 37/1, E. of road and 2 miles from Bulri.	36.023
55	0.90	$\begin{smallmatrix} \text{G.T.S.} \\ \text{O} \\ \text{B.M.} \end{smallmatrix}$ at stone pillar, on upper surface of P.W.D. bench mark No. 35/1, E. of road, 3 miles from Bulri and 2 miles from Kambra wāh.	38.216
		<i>Note: Bench mark No. 56 reported destroyed in 1929.</i>	
57	2.78	$\begin{smallmatrix} \text{G.T.S.} \\ \text{O} \\ \text{B.M.} \end{smallmatrix}$ at Mir wāh. Embedded 6 inches below ground, between old and new canals, on W. side of bridge, about 6 miles from Bulri village, 23 and 62 feet respectively from N. and S. ends of W. wing-wall of old road bridge, and 23 feet and 63 feet respectively from N. and S. ends of W. wing-wall of new road bridge.	45.360
		<i>Note: From this point emanates a branch-line.</i>	
58	0.03	$\begin{smallmatrix} \text{G.T.S.} \\ \text{O} \\ \text{B.M.} \end{smallmatrix}$ on stone copying of W. parapet of road bridge across old Mir wāh.	53.611
59 pp*	1.13	On top of mark-stone 1 foot below the upper surface, of Kanād G.T. Survey Tower station, lat. $24^{\circ} 55' 55''$ .68, long. $68^{\circ} 22' 28''$ .18. This is a Geodetic station of the Karāchi Longitudinal Series and is built close to and W. of the village of the same name in the Hyderābād collectorate of Sind. The following are circumjacent villages with their azimuths and distances: Lairani $295^{\circ}$ and miles 2.5; Dādu $125^{\circ}$ and mile 1; Dandi $170^{\circ}$ and miles 4.5. The pillar is 42 feet high. Mark-stones were buried as follows: One at level of foundation and the others at 2, 8, 14, 20, 26, 32, 38, 41, and 42 feet respectively above it.	82.293
		<i>Note: The branch-line ends here.</i>	

\* Reported not found in 1929.

## Bench marks falling in Degree Sheet 40D

Number in Sheet 40D	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 52 (Sujawal to Shikarpur) [Portion between Sujawal and Hyderabad not revised in Line 101 A].	feet
60	1.03 [from B.M. 57]	O.B.M. at stone pillar, on upper surface of P.W.D. bench mark No. 27/1, on E. margin of road, 1 mile N. of B.M. 57/40D.	41.434
61	0.81	O.B.M. at stone pillar, on upper surface of P.W.D. bench mark No. 25/1, on E. margin of road, 2 miles N. of B.M. 57/40D.	41.554
62	2.06	O.B.M. at stone pillar, on upper surface of P.W.D. bench mark No. 21/1, on E. margin of road 50 chains E. of Dhandhi.	42.721
		Main-Line 101 (Karachi to Khanpur). [Section Karachi-Kotri revised in 1924-26, coincident with part of Main-Line 53].  Note:—Bench marks Nos. 101 0, 78 and 102 are destroyed, (77) milestones removed.	
103	2.89 [from B.M. 106/35P]	G.T.S. O.B.M. on a layer of bedrock, 60 feet SE. of Tatta-Jerruck road. It is 89 feet and 153° from milestone Tatta 10, Jerruck 22.	58.153
104	0.99	G.T.S. O.B.M. on outcrop of rock, at the foot of a low hill range, about 92 feet NW. of Tatta-Jerruck road and about 220 feet NNE. of milestone Tatta 11, Jerruck 21. It bears 202° to a <i>kubba</i> on hill and 215° to milestone No. 11.	71.149
105	0.89	G.T.S. O.B.M. on a layer of bedrock, 79 feet SE. of Tatta-Jerruck road, about 307 feet SSW. of milestone Tatta 12, Jerruck 20, and bears 34° to same and 208° to a <i>kubba</i> on hill.	60.029
106	1.05	G.T.S. O.B.M. on a wall of rock, 24 feet above ground level, 54 feet E. of Tatta-Jerruck road. It measures 267 feet and bears 213° to milestone Tatta 13, Jerruck 19.	60.035

<sup>2</sup> Transferred from Degree Sheet No. 35 P where it was wrongly numbered as B.M. 92/35 P in G.T. Volume XIX B and the Levelling Pamphlet for Sheet 35, published in 1911.

## Bench marks falling in Degree Sheet 40D

Number in Sheet 40D	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 101 (Karachi to Khanpur).</b> [ <i>Section Karachi-Kotri revised in 1924-26</i> ].	<i>feet</i>
107	1.29	<p> <sup>a.T.S.</sup>  <sup>B.M.</sup> on rock in situ, about <math>\frac{1}{4}</math> mile SE. of Jāfir Sumār village, 190 feet N. of Tatta-Jerruck road, where it turns after emerging through 2 hillocks, about 3 furlongs NE. of milestone Tatta 14, Jerruck 18, and about 231 feet NNW. of a graveyard. It bears 270° to closer of the two deserted houses and about a furlong NNE. of junction of roads from Jāfir Sumār village with Tatta-Jerruck road.                 </p>	60.191
108	0.56	<p> <sup>a.T.S.</sup>  <sup>B.M.</sup> on rock in situ, on S. edge of diversion of Tatta-Jerruck road, about 5 feet above road-level, at W. foot of a hillock, about 196 feet WSW. of a regulator bridge on a forest band, about 495 feet and 336° to milestone Tatta 15, Jerruck 17 and 297 feet SW. of rail-post No. 8/6 on the band.                 </p> <p><i>Note:—Bench mark No. 109 is destroyed, milestone removed.</i></p>	41.998
110	2.08	<p> <sup>B.M.O</sup> on plinth-course, at road-level, of bridge on Tatta-Jerruck road, over Gidar wāh, 17 feet NE. of S. end of ESE. parapet wall, about <math>7\frac{1}{2}</math> furlongs NE. of milestone Tatta 16, Jerruck 16, and about 1 mile E. of Arbāb Sumār village.                 </p>	41.128
111	0.85	<p> <sup>O</sup>  <sup>B.M.</sup> at SW. end of stone plinth-course of SW. parapet wall of bridge slightly below road-level over Ali Bahār wāh on Tatta-Jerruck road, about 132 feet SW. of milestone Tatta 18, Jerruck 14.                 </p>	42.059
112	3.30	<p> <sup>B.O.M.</sup> on stone plinth-course, <math>3\frac{1}{2}</math> feet N. of centre of SE. parapet wall of bridge over Hāji wāh on Tatta-Jerruck road, about 5 furlongs SW. of milestone Tatta 22, Jerruck 10. The bench mark is 6 inches below the road-level.                 </p>	43.962
113	0.66	<p> <sup>B.O.M.</sup> on stone plinth-course, <math>6\frac{1}{2}</math> feet from NE. end of SE. parapet wall of bridge over Jām wāh, about 100 feet E. of milestone Tatta 22, Jerruck 10 and about <math>\frac{1}{2}</math> mile S. of Sonda village. The bench mark is in level with road.                 </p>	44.700

## Bench marks falling in Degree Sheet 40D

Number in Sheet 40D	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<p><b>Main-Line 101 (Karachi to Khanpur).</b></p> <p>[Section Karachi-Kotri revised in 1924-26].</p> <p><i>Note:—Bench mark No. 114 is destroyed, milestone removed.</i></p>	feet
115	1.76	<p><b>O.T.S.</b> <b>B.M.</b> (Type C) on extensive layer of rock in situ, 58 feet NW. of Tatta-Jerruck road and 1 furlong SW. of milestone Tatta 24, Jerruck 8.</p> <p>The distances and bearings of the surrounding objects are: Pir Fateh Shāh's tomb about <math>\frac{1}{2}</math> mile and <math>210^{\circ}</math> and milestone Tatta 24 about 1 furlong and <math>68^{\circ}</math>. The bench mark is protected by a hollow masonry pillar 2 feet square and covered by a stone slab bearing the inscription</p> <p style="text-align: right;">G.T. Survey B.O.M. Upper Mark.</p> <p>the height of which is 1.248 feet above the bench mark.</p>	61.977
4	0.00	<p><b>G.T.S.</b> <b>B.M.</b> Embedded flush with ground level, 47 feet E. of stone boundary pillar of village lands of Buhar, Pahehāri, Karund and Gath, which lie in the dry Rann of Cutch and 286 yards W. of road from Lakhpat to Mughalbhīn (Jāti). The letters</p> <p style="text-align: right;">B.M. 47 Ft.</p> <p>are cut on E. side of the stone boundary pillar which stands 47 feet W. of the bench mark.</p>	8.213 <sup>B</sup>
116	3.20	<p><b>O.</b> <b>B.M.</b> on top of stone pillar, fixed in the ground, projecting 6 inches above ground level, on left bank of a distributary named Marhājo wāl, 10 feet W. of Lakhpat-Jāti road and <math>\frac{1}{2}</math> mile NE. of Thāim village.</p>	10.490
117	3.51	<p><b>B.O.</b> <b>M.</b> on top of stone 6 inches square, fixed in the ground, projecting 6 inches above ground level, on right bank of Gādāp wāl, opposite canal stone No. 88 on N. edge of Lakhpat-Jāti road, and about <math>\frac{1}{2}</math> mile NE. of Bhīoro village and <math>3\frac{1}{4}</math> miles SE. of Jāti.</p>	18.923

<sup>B</sup> Old value found correct in 1926-27-28.

Bench marks falling in Degree Sheet 40 D

Number in Sheet 40 D	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<b>Main-Line 104 (Viramgam to Tatta).</b> [Section Buhar-Tatta revised in 1926-27-28].	feet
116 (5)	0.85	G.T.S. B.M. on stone coping, at E. end, of S. parapet of Gādāp wāh bridge, 3 miles SE. by E. of Jāti on Lakhpat-Jāti road.	21.9108
119 PP	1.48	⊙ on lower or ground mark-stone of Moghul Bhin (Mughalbhin) G. T. Survey Tower Station, lat. 24° 21' 7"·66, long. 68° 17' 7"·49. This is a principal station of the Cutch Coast Series and is about a mile E. of the town from which it takes its name and a few hundred yards from the huts known as Khera-ka-wāla. It is in the lands of the village of Jhariro, tāluka Jāti, sub-division Shāh-bandar, district Karāchi. The station consists of a tower enclosing a perforated pillar of masonry 20 feet in height of which the upper 5 feet is circular and isolated. An arched aperture to its S. side gives access to the lower mark. When visited by the levelling party in 1927-28 the earthen tower had crumbled away forming a mound of earth, about 8 feet in height, encircling the pillar. The station was found in good order but the upper mark was missing. The directions and distances of the circumjacent villages are: Jāti W., miles 1½; Khamiso Khairo ENE., mile ¾; Mohāna WSW., miles 1½.	24.064
120	1.07	G.T.S. B.M. on brick at S. or front veranda of Mukhtiārkar's office, Jāti, about 51 feet from SE. corner of E. wall, just below window north of the door to his office and 1 foot 4 inches from the S. wall of the main building.	18.707
121	0.11	G.T.S. B.M. on brick fixed in SE. veranda of dispensary at Jāti, just below western of the two windows and opposite to the latticed door.	18.154
122	1.64	G.T.S. B.M. on brick at middle of NE. parapet of culvert over Chandan Nawāb wāh about 3½ furlongs SE. of milestone Jāti 2, Sujāwal 20 on Jāti-Sujāwal road.	20.902
123	1.20	B.O.M. on brick at centre of E. parapet of culvert about 1½ furlongs S. of milestone Jāti 3, Sujāwal 19, on Jāti-Sujāwal road.	18.704

8 Revised value from the levelling of 1926-27-28.



## Bench marks falling in Degree Sheet 40D

Number in Sheet 40D	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 104 (Viramgam to Tatta). [Section Buhar-Tatta revised in 1926-27-28].	feet
124	2.25	B.O.M. on brick at centre of W. parapet of bridge over Begunāh wāh, about $\frac{1}{4}$ furlong NW. of milestone Jāti 5, Sujāwal 17, on Jāti-Sujāwal road.	21.497
12	1.08	G.T.S. on top of milestone "Mughalbhīn 6, Mirpur Batoro 20", SW. of old mosque, at E. edge of Jāti-Mirpur Batoro road, about a furlong N. of bifurcation of road to Sujāwal, in deserted goth of Satārdino Shāh and about $\frac{1}{4}$ mile W. of Habīb Mula village.	19.875 <sup>B</sup>
125	0.82	<sup>1880</sup> B.O.M. on stone slab embedded at SW. end of SW. abutment of Satārdino wooden bridge over Gungro wāh and about 8 furlongs SSE. of milestone Jāti 7, Sujāwal 15 on Jāti-Sujāwal road.	30.277
126	0.39	B.O.M. on top of milestone Sujāwal 15, Jāti 7, at NE. edge of Jāti-Sujāwal road and about 3 furlongs NNW. of Gungro wāh Satārdino wooden bridge.	20.408
127	2.24	B.O.M. on top of milestone Jāti 9, Sujāwal 13, at NW. edge of Jāti-Sujāwal road near the Chhāh Hatho wāh sluice bridge.	23.837
16	0.04	G.T.S. at Chhāh Hatho wāh sluice bridge. Embedded a few inches below ground level, close to boundary between tālukas Sujāwal and Jāti and 31 feet NE. of centre of road. It is about 77 yards NW. of bench mark No. 127/40D.  Note:—From this point emanates a branch-line to Gāda (Gāda) G. T. Survey Tower Station.	21.582 <sup>B</sup>
128 RP	3.26	⊙ on lower or ground level mark of Gāda (Gāda) G.T. Survey Tower Station (locally called "Phulki") lat. 24° 26' 21".25, long. 68° 10' 55".48. This is a principal station of the Cutch Coast Series and is about 1 $\frac{1}{4}$ miles ESE. of the village of Allah Dino Gāda and 8 miles NW. of the town of Mughalbhīn (Jāti). It is in the lands of the village of Jaroo Bākhi, tāluka Jāti, sub-division Shāh-bandar, district Karāchi. The station consisted of a tower	19.601

<sup>B</sup> Old value found correct in 1926-27-28.

Bench marks falling in Degree Sheet 40 D

Number in Sheet 40 D	Distance from preceding B.M. unless otherwise stated	Description of Bench mark	Height above Mean Sea-Level
	miles	Main-Line 104 (Viramgam to Tatta). (Section Bukar-Tatta revised in 1926-27-28).	feet
125 rr	(Contd.)	of sun-dried bricks, enclosing a perforated pillar of masonry 25 feet in height. When visited by levelling detachment in 1927-28 the tower and pillar had totally crumbled away forming a mound of earth round it. Only the arched aperture which gives access to the lower mark existed though in a very bad condition. The directions and distances of the circumjacent villages are: Husain Bikhri S. by E., miles 2½; Muhammad Hingorja S., miles 2½; and Kādu Hingorja SW., miles 2½.	19·601
Note:—The bench-line ends here.			
129 (22)	2·46 [from B.M. 125]	on top of old milestone Sujāwal 10, Ghulām Ali 5, on S.E. edge of Jāti-Sujāwal road.	22·097 δ
21	2·10	on top of milestone Sujāwal 8, Ghulām Ali 7, on E. edge of Jāti-Sujāwal road.	25·714 β
130	1·15	on brick flooring, just below eastern of the two windows, near the wall, in SW. or front veranda of canal inspection bungalow on E. side of Jāti-Sujāwal road and about ¼ mile S.E. of Mirzo Laghāri village.	23·912
131 (22)	0·99	on stone coping at southern recess of E. parapet, 1 foot from its S. end, of bridge over Dhoro Nāgin (Nāngan well) on Jāti-Sujāwal road, ¼ mile NW. of Mirzo Laghāri village.	30·749 δ
132 (24)	1·31	on top of milestone Sujāwal 5, Ghulām Ali 10 on N.E. edge of Jāti-Sujāwal road.	28·055 δ
133	1·05	on top of stone pillar (probably a milestone) with no inscription, about 3½ miles S.E. of Sujāwal and 18 feet N.E. of centre of Jāti-Sujāwal road.	22·829
134 (23)	2·19	on top of milestone Sujāwal 1, Ghulām Ali 14, on Jāti-Sujāwal road.	27·207 δ

δ O.I. value found correct in 1926-27-28.

β Revised value from the levelling of 1926-27-28.

## Bench marks falling in Degree Sheet 40 D

Number in Sheet 40 D	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 104 (Viramgam to Tatta).</b> [ <i>Section Buhar-Tatta revised in 1926-27-28.</i> ]	<i>feet</i>
29 rr	1.48	G.T.S. B.M. A.D. 1890 at Sujāwal. Embedded in front veranda of <i>Mukh-tiārkar's kachahri</i> , flush with floor, opposite to gateway and to left of court room door, immediately below window, 2 feet from wall and 36 feet from S.E. corner of veranda.	28.732 <sup>β</sup>
135	0.19	G.T.S. B.M. on brick on top of wall on E. edge of a water tank (from which drinking water is used by the people) at Sujāwal, and 45 feet W. of centre of Sujāwal-Tatta road. The Sujāwal dispensary bears 110° and is about a furlong distant from it.	29.242
		<i>Note:—From this point emanates a branch-line to Vikia G. T. Survey Tower Station.</i>	
136 (33)	1.56	G.T.S. B.M. on top of milestone Sujāwal 2, Belo 8, on E. edge of Sujāwal-Belo road.	28.682 <sup>β</sup>
34	1.15	G.T.S. B.M. on stone coping at S. end of W. parapet of bridge over Pathān <i>vāh</i> , opposite milestone Sujāwal 3, Belo 7 on Sujāwal-Belo road.	36.277 <sup>β</sup>
137	1.02	G.T.S. B.M. on stone slab bearing the inscription "1920" fixed at centre of top of E. parapet of bridge called Kāndi <i>vāh mori</i> , about 66 feet N. of milestone Sujāwal 4, Belo 6 on Sujāwal-Belo road.	33.107
138	2.17	G.T.S. B.M. on top of milestone Sujāwal 6, Belo 4 on E. edge of Sujāwal-Belo road.	30.893
139 rr	1.22	○ on lower or ground level mark-stone of Vikia G. T. Survey Tower Station, lat. 24° 21' 52" .60, long. 68° 3' 39" .48. This is a principal station of the Cutch Coast Series and stands a few hundred yards NNE. of Vikia village, about $\frac{2}{3}$ of a mile of the high road from Sujāwal to Belo and $3\frac{1}{2}$ miles SE. of the latter. It is in the lands of the village of Vikia, <i>tāluqa</i> Sujāwal, sub-division Shāhbandar, district Karāchi. The station consists of a tower of sun-dried bricks enclosing a perforated pillar of masonry 20 feet	26.779

<sup>β</sup> Old value found correct in 1926-27-28.<sup>δ</sup> Revised value from the levelling of 1926-27-28.



## Bench marks falling in Degree Sheet 40 E

Number in Sheet 40 E	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 101 (Karachi to Khanpur). [Section Jacobabad-Khanpur revised in 1921-22-23, coincident with part of Branch-Line 57 C].	feet
21	1.84 [from B.M. 266/40A (90)]	G.T.S. O on parapet over SE. end of SW. abutment of bridge B.M. No. 201 between telegraph posts Nos. 305/11 and 305/12.	210.626 <sup>β</sup>
20	1.48	G.T.S. O on parapet over SE. end of SW. abutment of bridge B.M. No. 204 between telegraph posts Nos. 306/20 and 306/21.	210.280 <sup>β</sup>
18	2.47	G.T.S. O on stone coping of up-line platform opposite station B.M. building of Sāngi railway station.	218.507 <sup>β</sup>
17	1.71	G.T.S. O on NW. cap of NE. abutment of girder bridge B.M. No. 218, between mile-plate No. 311 and telegraph post No. 311/1.	210.796 <sup>β</sup>
38	4.10	B. ↑ M. on brick at centre of SE. parapet of bridge No. 223, between telegraph posts Nos. 315/2 and 315/3. (Railway bench mark).	209.628
18	1.82	G.T.S. O at Pano Akil railway station. Interred at B.M. (Type B) SW. end of up-line platform, about 2½ feet A.D. 1904 below ground level. The distances and bearings of the surrounding objects are: B.M. 39, 385 feet NE.; palisade 6 feet NE.; N. corner of (12) goods office 83 feet and 172°; pakka well 98 feet and 245°; telegraph post No. 316/22, 103 feet and 282°; dead-end of siding 15 feet SW. A rail-post with iron plate bearing the inscription G.T.S. stands 2½ feet NW. of the bench mark. B.M.	215.125 <sup>β</sup>
39 (12)	0.06	G.T.S. O on stone coping of up-line platform opposite station B.M. building of Pano Akil railway station.	217.628 <sup>δ</sup>
40 (11)	1.60	B. ↑ M. on brick parapet over NW. end of NE. abutment of bridge No. 232, between telegraph posts Nos. 318/18 and 318/14. (Railway bench mark).	217.432 <sup>δ</sup>
41 (10)	0.49	G.T.S. O on NW. cap of SW. abutment of girder-bridge B.M. No. 234, between telegraph posts Nos. 319/1 and 319/2.	218.658 <sup>δ</sup>

<sup>β</sup> Old value found correct in 1921-22-23.

<sup>δ</sup> Revised value from the levelling of 1921-22-23.

Bench marks falling in Degree Sheet 40 E

Number in Sheet 40 E	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 101 (Karachi to Khanpur). [Section Jacobabad-Khanpur revised in 1921-22-23].	feet
42	1.49	B.M. on NW. cap of SW. abutment of girder-bridge No. 239, near telegraph post No. 320/13.	221.859
43 (9)	0.94	G.T.S. B.M. on SW. end of SE. parapet of bridge No. 241, between telegraph posts Nos. 321/12 and 321/13.	222.681 δ
44	1.50	G.T.S. B.M. on brick on SE. cap of SW. abutment of bridge No. 244, between telegraph posts Nos. 322/24 and 322/25.	224.102
7	1.15	G.T.S. B.M. (Type B) at Mahesar railway station. Interred at SW. end of down-line platform, about 2 feet below ground level. The distances and bearings of the surrounding objects are: B.M. (6), 218 feet N.; edge of palisade 5 feet E.; N. corner of level-crossing gate lodge No. 323/23, 660 feet and 332°; telegraph post No. 321/3, 85 feet and 307°; NE. dead-end of siding 52 feet NW.; edge of platform 10 feet NW. A rail-post with an iron plate bearing the inscription G.T.S. B.M. stands 2 feet SE. of the bench mark.	226.825 β
45 (6)	0.04	G.T.S. B.M. on stone coping of up-line platform, under the over-bridge of Mahesar railway station.	228.788 δ
46	1.06	G.T.S. B.M. on NE. cap of NE. abutment of girder-bridge No. 248 near telegraph post No. 325/4.	226.978
47 (4)	1.23	G.T.S. B.M. on SE. cap of NE. abutment of girder-bridge No. 250 near telegraph post No. 326/9.	231.588 δ
3	2.60	G.T.S. B.M. on stone slab embedded in a cube of masonry flush with ground level, opposite mile-plate No. 329.	229.186 β
48 (2)	3.69	G.T.S. B.M. (Type B) at Ghotki railway station. Interred at SW. end of up-line platform with upper surface of stone level with the platform. The distances and bearings of the surrounding objects are: B.M. (1), 201 feet NE.; centre of up-line rails	233.716 δ

β Old value found correct in 1921-22-23.

δ Revised value from the levelling of 1921-22-23.

## Bench marks falling in Degree Sheet 40 E

Number in Sheet 40 E	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<b>Main-Line 101 (Karachi to Khanpur).</b> [Section Jacobabad-Khanpur revised in 1921-22-23].	feet
48 (2)	(Contd.)	14 feet SE.; inner SW. hydrant 25 feet and 170°; E. corner of SW. water-tank 248 feet and 235°; telegraph post No. 232/16, 207 feet and 260°; dead-end of siding 10 feet W. A rail-post with an iron plate bearing the inscription <sup>G.T.S.</sup> <sub>B.M.</sub> stands 2½ feet NW. of the bench mark.	233·716 8
49 (1)	0·04	<sup>G.T.S.</sup> <sub>B.M.</sub> on stone slab let into coping of up-line platform of Ghotki railway station, opposite to station building.	233·657 8

8 Revised value from the levelling of 1921-22-23.

Bench marks falling in Degree Sheet 40 G

Number in Sheet 40 G	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 150 (Kotri to Barmer).	feet
144 (29)	0.48 [from B.M. 465/40 C.]	$\frac{49}{1 \square}$ on stone block fixed on plinth under central arch of E. veranda of the office of Executive Engineer, Northern Jāmrao Division, Mirpur Khās.	51.693 8
145 (27)	0.72	G.T.S. B.M. on brick flooring adjoining wall, just E. of entrance to central hall of S. or main veranda of civil hospital, Mirpur Khās.	51.801 8
146 (26)	0.29	Top of iron pipe embedded 1 foot below level of platform, 139 feet W. of SW. corner of Mirpur Khās junction railway station building, 39 feet N. of S. edge of platform, and 10 feet S. of iron paling of platform enclosure. (Irrigation bench mark).	52.972 8
147 PP	0.07	G.T.S. $\square$ B.M. A.D. 1924 at Mirpur Khās junction railway station. (Type B) Interred 163 feet N. of main station building and 3 feet below ground level. The distances and bearings of the surrounding objects are: NW. corner of main station building 194 feet and 200°; NE. corner of iron fencing outside main exit for 1st and 2nd class passengers 9 feet NE.; centre of main entrance door of Jāma Masjid 198 feet and 324°. A rail-post with an iron plate bearing letters G.T.S. B.M. stands 4 feet 4 Ft. N. of the bench mark.	46.973
		Note:—The foundation is in firm soil and the nearest road is about 50 feet distant.	
		Note:—From this point emanates a branch-line to Standard Bench Mark, Mirpur Khās.	
148 PP	0.75	Top of sandstone monolith (no inscription) of Standard Bench Mark (Minor Type) at Mirpur Khās. (Primary Mark). It is situated in E. side of the compound of Mukhtiar-kar's kachahri, Mirpur Khās. The distances and bearings of the surrounding objects are: centre of well on E. side of the kachahri 164 feet and 206°; NE. corner of Resident Magistrate's court 183 feet and 224°; NW. corner of same 192 feet and 242°; NE. corner of the kachahri 211 feet and 274°; SE. corner of the jail 277 feet and 307° and SE. corner of police sub-inspector's quarters 147 feet and 356°. The station consists	52.979

8 Revised value from the levelling of 1924-26.



## Bench marks falling in Degree Sheet 40 G

Number in Sheet 40G	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<b>Main-Line 150 (Kotri to Barmer).</b>	feet
148 BP	(Contd.)	of a sandstone monolith, 1 foot square at base and 3 feet high, the upper 3 inches being dressed to the form of a frustum of a pyramid terminating in a smooth square of 3-inch side. The monolith rests on a bed of concrete 5 feet square and 3 feet deep, the upper surface of monolith being 1 foot above ground level. It is surrounded by a masonry wall about 5 feet square (outside); 1 foot thick and 2½ feet high. It includes three supplementary marks two of which are on N. and S. sides of the monolith consisting of hard stone prisms, 8 inches long and 3 inches square, their smooth tops flush with the surface of the concrete bed, and the third a stout iron bolt 1½ inches in diameter and 8 inches long built horizontally into the N. masonry wall and projecting about ¼ inch out of it. The inner enclosure is filled in with rubble to a height of about 6 inches above the top surface of the monolith and the rest with earth.	52·979
		<i>Note:—The foundation is in firm soil and the nearest road is about 400 feet distant.</i>	
149	0·00	Top of stone prism (no inscription) at S. side of the monolith of Standard Bench Mark (Minor Type) at Mirpur Khās. (Supplementary Mark).	52·006
150	0·00	Top of stone prism (no inscription) at N. side of the monolith of Standard Bench Mark (Minor Type) at Mirpur Khās. (Supplementary Mark).	52·022
151	0·00	Iron bolt (no inscription) let into the N. masonry wall of Standard Bench Mark (Minor Type) at Mirpur Khās. (Supplementary Mark).	52·407
		<i>Note:—The branch-line ends here.</i>	
152	0·16 [from B.M. 147]	B.O.M. on stone coping of S. ash-pit, at its S. coping, 17 feet 3 inches from its E. end, 32 feet from its W. end, 30 feet 4 inches E. of E. water column, 162 feet W. of telegraph post No. 424/10 from Kuchāwan Road and 66 feet 3 inches NE. of SE. corner of engine-shed at Mirpur Khās junction railway station.	49·705
153	1·02	B.O.M. on brick on SE. abutment of railway culvert No. 146, opposite telegraph post No. 423/10 from Kuchāwan Road.	50·430

Bench marks falling in Degree Sheet 40 G

Number in Sheet 40 G	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 150 (Kotri to Barmer).	feet
154	1.23	G.T.S. O. B.M. on brick on NW. abutment, at its N. side, of railway culvert No. 188, between telegraph posts Nos. 422/4 and 422/5 from Kuchāwan Road.	49.818
155	1.22	B.O.M. on brick on S. parapet of railway culvert between telegraph posts Nos. 420/23 and 420/24 from Kuchāwan Road.	49.183
156	0.70	129 B.O.M. on stone slab embedded at middle of NE. wing-wall of railway bridge No. 129; between telegraph posts Nos. 420/6 and 420/7 from Kuchāwan Road.	50.946
157	0.66	G.T.S. O. B.M. on stone on circular wall, at its N. side, round W. water tap, at platform of Jāmrao Junction railway station.	51.571
158	0.04	G.T.S. O. B.M. (Type B) at Jāmrao Junction railway station. Interred 105½ feet S. of station building and 3 feet below ground level. The distances and bearings of the surrounding objects are: SW. corner of station building 109 feet and 352°; SE. corner of same 109 feet and 12°; centre of main-line rails 65 feet N.; telegraph post No. 419/15 from Kuchāwan Road 50 feet and 182°. A rail-post with an iron plate bearing letters G.T.S. B.M. 4 Ft. stands 4 feet S. of the bench mark.	45.272
<i>Note:—The foundation is in firm soil and the nearest railway line is about 20 feet distant.</i>			
159	1.11	G.T.S. O. B.M. on stone on N. cap of E. abutment of railway bridge No. 122 over Jāmrao canal, between telegraph posts Nos. 418/11 and 418/12 from Kuchāwan Road.	60.782
160	0.86	B.O.M. on brick on S. cap of E. abutment of railway culvert between telegraph posts Nos. 417/15 and 417/16 from Kuchāwan Road.	51.389
161	0.99	B.O.M. on brick on E. abutment, at its S. end, of railway culvert between telegraph posts Nos. 416/15 and 416/16 from Kuchāwan Road.	51.123

## Bench marks falling in Degree Sheet 40 G

Number in Sheet 40 G	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 150 (Kotri to Barmer).	feet
162	0.79	G.T.S. B.M. on brick on E. abutment, at its S. side, of railway culvert No. 114, between telegraph posts Nos. 415/19 and 415/20 from Kuchāwan Road.	51.107
163	0.61	B.O.M. on brick on E. wing-wall, at its S. end, of railway culvert opposite telegraph post No. 415/6 from Kuchāwan Road.	51.118
164	1.96	G.T.S. B.M. on brick on S. wing-wall, at its middle, of W. abutment of railway bridge No. 111 between telegraph posts Nos. 413/7 and 413/8 from Kuchāwan Road.	48.581
165	0.97	109 B.O.M. on stone slab embedded at middle of N. wing-wall of E. abutment of railway bridge No. 109 over Mithrau canal, between telegraph posts Nos. 412/8 and 412/9 from Kuchāwan Road.	59.367
166	0.97	G.T.S. B.M. on top of canal-stone pillar No. 1/0 on right bank of Dangan wāl, about 200 feet N. of railway bridge No. 106 over the said minor, between telegraph posts Nos. 411/8 and 411/9 from Kuchāwan Road.	48.854
167	1.49	G.T.S. [C] B.M. (Type B) at Shādi Pali railway station. Interred 239½ feet S. of centre of station building and 3 feet below ground level. The distances and bearings of the surrounding objects are: SE. corner of goods-shed 138 feet and 322°; SW. corner of station building 255 feet and 354°; SE. corner of same 253 feet and 8°; centre of main-line rails 199 feet N.; telegraph post No. 410/22 from Kuchāwan Road 63 feet and 248°. A rail-post with an iron plate bearing letters G.T.S. B.M. stands 4 4 Ft. feet S. of the bench mark.	40.497
168	0.09	B.O.M. on brick at plinth of S. parapet, near its W. end, of railway culvert opposite telegraph post No. 409/21 from Kuchāwan Road.	45.191

*Note:—The foundation is in firm soil and the nearest railway line is about 150 feet distant.*

## Bench marks falling in Degree Sheet 40 G

Number in Sheet 40 G	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 150 (Kotri to Barmer).</b>	<i>feet</i>
169	2.22	G.T.S. O. B.M. on brick on S. cap of E. abutment of railway culvert between telegraph posts Nos. 407/15 and 407/16 from Kuchāwan Road.	40.037
170	1.33	G.T.S. O. B.M. on brick on S. parapet, near its E. end, of railway bridge over a minor between telegraph posts Nos. 406/7 and 406/8 from Kuchāwan Road.	37.588
171	1.54	93 B.O.M. on stone slab embedded in N. parapet of railway culvert No. 93 between telegraph posts Nos. 404/19 and 404/20 from Kuchāwan Road.	33.995
172	1.42	B.O.M. on top of stone pillar-embedded close to S. railway wire fencing, 34 feet S. of centre of main-line rails and 44 feet W. of telegraph post No. 403/9 from Kuchāwan Road.	32.081
173	0.47	B.O.M. on brick at SE. corner of S. plinth of railway level-crossing lodge No. 23, opposite telegraph post No. 402/22 from Kuchāwan Road.	35.389
174	0.77	G.T.S. ⊙ B.M. A.D. 1924 at Pithoro railway station. Interred 126 (Type B) feet N. of station building and about 3 feet below ground level. The distances and bearings of the surrounding objects are: telegraph post No. 402/3 from Kuchāwan Road 315 feet and 167°; NE. corner of station building 138 feet and 173°; NW. corner of same 141 feet and 195°; centre of main-line rails 92 feet S. A rail-post with an iron plate bearing letters G.T.S. B.M. stands 4 feet N. of the bench mark. 4 Ft.	31.917
		<i>Note:—The foundation is in firm soil and the nearest railway line is about 50 feet distant.</i>	
175	0.03	B.O.M. on brick at N. plinth flush with veranda floor of station master's room about 1 foot W. of NE. corner of same at Pithoro railway station.	37.619
176 (57)	0.22	G.T.S. O. B.M. on brick flooring against wall and under central window of N. or front veranda of P.W.D. inspection bungalow at Pithoro railway station.	35.559 8

\* Revised value from the levelling of 1924-25.


## Bench marks falling in Degree Sheet 40 G

Number in Sheet 40 G	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 150 ( Kotri to Barmer ).</b>	<i>feet</i>
177	0.32	B.O.M. on brick on S. cornice, about 6 inches below S. parapet and about 10 feet from its W. end, of railway culvert over a minor, about 80 feet SW. of E. distant signal of Pithoro railway station and between telegraph posts Nos. 401/16 and 401/17 from Kuchāwan Road.	40.118
178	0.85	B.O.M. on top of stone pillar embedded close to S. railway wire fencing, 30 feet S. of centre of rails, 38 feet 4 inches. NE. of telegraph post No. 400/20 from Kuchāwan Road.	38.949
179	0.88	G.T.S. B.M. on stone block on N. side of middle pier of railway bridge No. 79, between telegraph posts Nos. 400/10 and 400/11 from Kuchāwan Road.	36.713
180	0.85	B.O.M. on top of stone pillar embedded close to S. railway wire fencing, 31 feet S. of centre of rails and 54 feet NW. of telegraph post No. 399/14 from Kuchāwan Road.	35.948
181	0.57	B.O.M. on stone pillar embedded close to S. railway wire fencing, 31 feet S. of centre of rails, 90 feet NE. of telegraph post No. 399/1 and about 16 feet S. of mile-plate No. 399 from Kuchāwan Road.	37.713
182	1.23	G.T.S. B.M. on stone on N. cap of middle pier of railway bridge No. 63, opposite telegraph post No. 397/19 from Kuchāwan Road.	39.493
183	1.04	B.O.M. on top of stone pillar embedded close to N. railway wire fencing, 71 feet N. of centre of rails and 123 feet N. of telegraph post No. 396/18 from Kuchāwan Road.	40.524
184	0.77	B.O.M. on brick at W. plinth in front of lamp-room door, 5 feet N. of SW. corner of Hiral railway station building.	42.479
185	1.16	G.T.S. B.M. on brick on S. parapet about 8 feet from its E. end, of railway bridge No. 56 A over a minor, about 80 feet NE. of telegraph post No. 394/20 from Kuchāwan Road.	42.473

Bench marks falling in Degree Sheet 40 G

Number in Sheet 40 G	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 150 (Kotri to Barmer).	feet
186	1.78	B.O.M. on top of stone pillar embedded close to S. railway wire fencing, 30 feet 3 inches S. of centre of main-line rails, 48 feet NE. of telegraph post No. 393/1 from Kuchāwan Road and about 400 feet W. of level-crossing lodge No. 15.	39.242
187	0.62	G.T.S. on brick on S. parapet, at its middle, of railway bridge No. 55 A over a minor, opposite telegraph post No. 392/10 from Kuchāwan Road.	42.991
188	0.50	G.T.S. on brick on S. cap of W. abutment of railway bridge No. 55 over Nāra river, opposite telegraph post No. 391/21 from Kuchāwan Road.	50.344
189	0.13	G.T.S. on brick on N. cap of E. abutment of railway bridge No. 55 over Nāra river, between telegraph posts Nos. 391/18 and 391/19 from Kuchāwan Road.	50.418
190	0.89	G.T.S. on brick on N. abutment, at its E. end, of regulator bridge over Thar wāh, (right branch), about 65 feet SE. of SE. corner of railway water pump-house and 73 feet S. of telegraph post No. 390/22 from Kuchāwan Road.	40.337
191	0.57	G.T.S. at Dhoro Nāro railway station. Interred (Type B) 128½ feet N. of station building and 1 foot below ground level. The distances and bearings of the surrounding objects are: NE. corner of station building 157 feet and 157°; NW. corner of same 141 feet and 176°; centre of main-line rails 90 feet S.; telegraph post No. 390/8 from Kuchāwan Road 274 feet and 188°. A rail-post with an iron plate bearing letters G.T.S. B.M. stands 4 feet N. of the bench mark. 4 Ft.	37.123
		Note:—The foundation is in firm soil and the nearest railway line is about 30 feet distant.	
192	0.04	G.T.S. on brick on veranda flooring against wall of Dhoro Nāro railway station building, about 6 feet from centre of 1st class waiting room door and about 16 feet W. of NE. corner of station building.	42.497

## Bench marks falling in Degree Sheet 40G

Number in Sheet 40G	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 150 (Kotri to Barmer).</b>	<i>feet</i>
193	1.36	B.O.M. on top of stone pillar embedded close to S. railway wire fencing, 82 feet S. of centre of main-line rails and 60 feet E. of telegraph post No. 388/24 from Kuchāwan Road.	37.549
194	1.24	<sup>47</sup> B.O.M. on stone slab embedded in N.E. wing-wall, at its middle, of railway bridge No. 47 over a minor, opposite telegraph post No. 387/15 from Kuchāwan Road.	41.262
195	2.07	G.T.S. B.M. on brick on S. cap of W. abutment of railway bridge No. 46 between telegraph posts Nos. 385/13 and 385/14 from Kuchāwan Road.	36.485
196	1.12	G.T.S. B.M. on brick on S. cap of E. abutment of railway bridge No. 40, between telegraph posts Nos. 384/10 and 384/11 from Kuchāwan Road.	35.575
197	1.83	G.T.S.  (Type B) at Hasisar railway station. Interred 250 feet S. of station building and 2½ feet below ground level. The distances and bearings of the surrounding objects are: telegraph post No. 383/6 from Kuchāwan Road 150 feet and 340°; SW. corner of station building 253 feet and 42°; SE. corner of same 254 feet and 358°; centre of main-line rails 199 feet N. A rail-post with an iron plate bearing letters G.T.S. B.M. stands 4 feet S. of the bench mark. 4 Ft. A.O. 1924	28.841
		<i>Note:—The foundation is in firm soil and the nearest railway line is about 180 feet distant.</i>	
198	1.56	B.O.M. on top of stone pillar embedded close to N. railway wire fencing, 71 feet N. of centre of main-line rails, opposite and 125 feet N. of telegraph post No. 381/17 from Kuchāwan Road.	29.658
199	0.96	G.T.S. B.M. on brick on N. cap of W. abutment of railway bridge No. 24, near telegraph post No. 380/18 from Kuchāwan Road.	29.179
200	1.22	B.O.M. on top of stone pillar embedded close to S. railway wire fencing, 36 feet S. of centre of main-line rails, 79 feet E. of telegraph post No. 379/13 from Kuchāwan Road.	17.211

Bench marks falling in Degree Sheet 40G

Bench Number in Sheet 40G	Distance from Bench to nearest station	Description of Bench Mark	Height above Mean Sea-Level
		<b>Main-Line 150 (Kotri to Barmer).</b>	
201	1-24	Top of stone pillar embedded close to N. railway wire-fencing, 106 feet N. of centre of main-line rails and 173 feet NW. of telegraph post No. 37a 7 from B. & L. Bench.	15-983
202	1-07	at Chhor railway station. Intersected 243 feet N. of station building and 3 feet below ground level. The distances and bearings of the surrounding objects are: NE. corner of station building 258 feet and 163°; NW. corner of same 250 feet and 175°; NW. corner of masonry water-tank 128 feet and 117°; centre of main-line rails 200 feet S. A rail-post with an iron plate bearing letters "C.T." stands 4 feet N. of the bench mark.	17-681
		<i>Note</i> —The foundation is in front of and the nearest end-way fence is at 165 feet distant.	
		<i>Note</i> —From this point an water main-line to Standard Bench Mark, Chhor.	
203	0-15	Top of stone monolith (no inscription) of Standard Bench Mark (Minor Type) at Chhor railway station. (Primary Mark). It is situated about a quarter mile N. of Chhor railway station building outside the NW. corner of the station yard wire-fencing. It bears 1213 feet and 163° and 1213 feet and 165° respectively from NE. and NW. corners of station building; NW. corner of station yard N. wire-fencing 51 feet and 171°; W. water column 1180 feet and 185°. The station consists of a sandstone monolith, 1 foot square at base and 3 feet high, the upper 3 inches being dressed to the form of a frustum of a pyramid terminating in a smooth square of 3-inch side. The monolith rests on a bed of concrete 5 feet square and 3 feet deep, the upper surface of the monolith being 1 foot above ground level. It is surrounded by a masonry wall about 5 feet square (outside), 1 foot thick and 24 feet high. It includes two supplementary marks one of which is on W. side of the monolith consisting of a copper bolt of 1½ inch diameter, its end with top flush with the surface of the concrete bed and the second a stout iron bolt of 1 inch diameter and 8 inches long built horizontally into the E. masonry wall and projecting about	20-807



## Bench marks falling in Degree Sheet 40 G

Number in Sheet 40 G	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<b>Main-Line 150 (Kotri to Barmer).</b>	feet
203 RP (Contd.)		2 inches out of it. The inner enclosure is filled in with rubble to a height of about 6 inches above the top surface of the monolith and the rest with earth.  <i>Note:—The foundation is in firm soil and the nearest railway line is about 1150 feet distant.</i>	20·807
204	0·00	Top of copper bolt (no inscription) on W. side of the monolith of Standard Bench Mark (Minor Type) at Chhor. (Supplementary Mark).	19·872
205	0·00	Iron bolt (no inscription) let into the E. masonry wall of Standard Bench Mark (Minor Type) at Chhor. (Supplementary Mark).  <i>Note:—The branch-line ends here.</i>	20·160
206	0·05 [from B.M. 202]	G.T.S. on brick on veranda flooring, against wall, 8 feet B.M. W. of centre of 1st class waiting room door and 18 feet W. of N.E. corner of main building of Chhor railway station.	22·555
207	0·13	G.T.S. on brick on veranda flooring, against N. wall, 5½ B.M. feet W. of its N.E. corner and 12 feet S.E. of centre of 2nd archway of N. veranda from E. of combined railway rest-house and water-tank at Chhor railway station.	21·966
208	0·92	B.O.M. on top of stone pillar embedded 37 feet S. of centre of main-line rails and 5 feet E. of telegraph post No. 376/6 from Kuchāwan Road.	16·657
209	1·20	B.O.M. on brick at plinth at S.W. corner of railway level-crossing lodge, opposite and 51½ feet N. of telegraph post No. 375/1 from Kuchāwan Road.  <i>Note:—From this point emanates a branch-line to Hatodan G. T. Survey Hill Station.</i>	26·496
210 RP	2·69	○ on top of upper surface of circular pillar flush with ground level of Hatodan G. T. Survey Hill Station, lat. 25° 29' 34"·72, long. 69° 49' 45"·34. This is a principal station of the Eastern Sind Meridional Series and is situated on the northern extremity of a long sand hill	297·250

## Bench marks falling in Degree Sheet 40G

Number in Sheet 40G	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height Above Mean Sea-Level
	miles	<b>Main-Line 150 (Kotri to Barmor).</b>	feet
210FF	(Contd.)	running in the usual NE. and SW. direction and terminating abruptly towards the north, about $1\frac{1}{2}$ miles SE. of the road from Umarnkot to Rānāhu village through Chhor (new) village, about 3 miles E. of the low ground inundated by old course of Nāra river, about 2 miles SSE. of Chhor (new) village, also known as Sinai Nāo, about $2\frac{1}{2}$ miles SE. of Chhor (old) village also known as Sinai Purāno or Juni Chhor. It is in the lands of Chhor village, tāluka Umarnkot, district Thar and Pārkar (Sind). The station consists of a masonry pillar, surrounded by an annular wall, 3 feet deep and $3\frac{1}{2}$ feet in diameter. It contains 3 mark-stones one at the foundation, another 1 foot above it and the third on the upper surface of the pillar, which is flush with the ground level. The distances and bearings of the surrounding objects are: goth Khet Singh 4 miles W. and $277^{\circ}$ ; Chhor railway station $4\frac{1}{2}$ miles NW. and $297^{\circ}$ ; bungalow at N. end of Chhor (old) village $2\frac{1}{2}$ miles NW. and $316^{\circ}$ ; temple in the middle of Chhor (new) village $2\frac{1}{2}$ miles NNW. and $4^{\circ}$ . A rectangular protecting pillar of <i>kachcha</i> bricks 3 feet square and $3\frac{1}{2}$ feet high stands over the circular pillar of the station. The station circular pillar with its top mark-stone was found intact and in good condition, while the <i>kachcha</i> protecting pillar built over the station pillar was found in broken state. After the top mark was connected the protecting pillar was rebuilt over it with bricks only, 3 feet square and $3\frac{1}{2}$ feet high.	297·250
		<i>Note:—The branch-line ends here.</i>	
211	1·19 [4=2000]	+ on top of iron rail embedded in a block of concrete $8\frac{1}{2}$ feet N. of centre of main-line rails, $91\frac{1}{2}$ feet NW. of telegraph post No. 373/20, $155\frac{1}{2}$ feet NE. of telegraph post No. 373/21 from Kuchāwan Road and about $\frac{1}{2}$ mile NW. of Chhor (new) village.	51·231
212	0·45	on brick on E. abutment, 3 feet from its N. end, of railway bridge No. 10 opposite Chhor (new) village and opposite telegraph post No. 373/9 from Kuchāwan Road.	67·235
213	0·23	on brick on S. wing-wall of E. abutment, at its middle, of railway bridge No. 9, near telegraph post No. 370/24 from Kuchāwan Road.	69·933

## Bench marks falling in Degree Sheet 40 G

Number in Sheet 40 G	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 150 (Kotri to Barmer).</b>	<i>feet</i>
214	0.89	G.T.S. on brick on NE. wing-wall, at its middle, of B.M. railway bridge No. 8, between telegraph posts Nos. 370/2 and 370/3 from Kuchāwan Road.	107.021
215	1.24	G.T.S. on brick on NE. parapet of railway bridge No. 6, B.M. near telegraph post No. 368/22 from Kuchāwan Road.	118.987
216	0.68	G.T.S. on brick on SE. wing-wall, at its middle, of rail- B.M. way bridge No. 5, about 20 feet S. of W. home signal of Parche-ji-veri railway station and opposite telegraph post No. 368/2 from Kuchāwan Road.	99.557
217	0.79	G.T.S. on stone at base of E. distant signal of Parche-ji- B.M. veri railway station, near telegraph post No. 367/8 from Kuchāwan Road.	108.126
218	2.80	+ on top of iron rail embedded in concrete block, 8 feet 3 inches N. of centre of main-line rails and 29 feet N. of mile-plate No. 365 from Kuchāwan Road.	107.211
219	1.89	+ on top of iron rail embedded in a block of masonry, 8½ feet N. of centre of main-line rails and 57 feet NW. of telegraph post No. 363/15 from Kuchāwan Road.	119.454
220	1.81	G.T.S. on brick at base of W. distant signal of Jalu-jo- B.M. chaunro railway station and 81½ feet NW. of telegraph post No. 361/19 from Kuchāwan Road.	123.772
221	0.51	G.T.S. at Jalu-jo-chaunro railway station. Inter- B.M. (Type B) rred 188 feet S. of station building and 2 feet below ground level. The distances and bearings of the surrounding objects are: telegraph post No. 361/7 from Kuchāwan Road 86 feet and 302°; SW. corner of station building 190 feet and 324°; SE. corner of same 190 feet and 935°; centre of main-line rails 148 feet N. A rail-post with an iron plate bearing letters G.T.S. B.M. stands 4 feet S. of the bench mark. 4 Ft.	147.947
Note:—The foundation is in sandy soil and the nearest railway line is about 100 feet distant.			

Bench marks falling in Degree-Sheet 40I

Number in Sheet 40I	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 102 (Khanpur to Marwar Pali).	feet
1	55.08 [from B.M. 7539L]	G.T.S. on stone on eastern edge of the easternmost <i>pakka</i> B.M. well in Islāngarh.	349.129
2 Pp	15.29	G.T.S. (Type B) at Govardhanla well. Interred about 13 B.M. feet below ground level. The distances A.D. 1921 and bearings of the surrounding objects are: eastern of two <i>jand</i> ( <i>Khejara</i> ) trees 1151 feet and 23°; solitary <i>jand</i> ( <i>Khejara</i> ) tree 486 feet and 218°; centre of <i>pakka</i> well 150 feet and 247°; <i>bair</i> tree near well 173 feet and 251°. An old monumental stone pillar with a stone slab let into its side facing the bench mark and bearing the inscription G.T.S. B.M. stands 6½ feet W. of bench mark as a referring pillar.	408.366
3	5.62	G.T.S. on zinc plate fixed to the root of a <i>jand</i> tree about B.M. 33 feet W. of Islāngarh-Jaisalmer road and about 3½ miles S. of Govardhanla well.	407.645
4	5.43	G.T.S. on zinc plate fixed to the root of a <i>jand</i> tree about B.M. 66 feet W. of centre of Islāngarh-Jaisalmer road and about 11 miles S. of Govardhanla well.	401.485
5	3.19.	B.M. on top of monumental stone pillar fixed in the ground and projecting about 2 feet above ground level, on E. side of a dry pond surrounded by a cluster of <i>bair</i> trees and about ¾ mile E. of Islāngarh- Jaisalmer road. The place is known as Maw Keri.	440.422
6	6.82	G.T.S. (Type B) at Dawarka Tānda. Interred about 2 B.M. feet below ground level. The distances A.D. 1921 and bearings of the surrounding objects are: big solitary <i>jand</i> tree 306 feet and 121°; spire of eastern of two stone canopies locally known as " <i>chhattries</i> " 175 feet and 226°; spire of western of two stone canopies 268 feet and 243½°; big <i>jand</i> tree near edge of Dawar pond 290 feet and 273½°. A masonry referring pillar with a stone slab bearing the inscription G.T.S. B.M. stands 10 feet S. of the bench mark.	460.586

## Bench marks falling in Degree Sheet 40I

Number in Sheet 40I	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 102 (Khanpur to Marwar Pali).	feet
7	5.66	G.T.S. on top of W. curb of <i>pakka</i> square well on E. side of Islāmgarh-Jaisalmer road, about $\frac{3}{4}$ mile E. of Mandha village.	585.841
8	1.64	G.T.S. on N. end of W. stone parapet wall of a reservoir adjoining a <i>pakka</i> well on E. side of Islāmgarh-Jaisalmer road, about $\frac{3}{4}$ mile NE. of Ratta village.	580.976
9	4.69	O on rock in situ about 66 feet W. of the Islāmgarh-Jaisalmer road and about 4 miles S. of Ratta village (now in ruins). It is on the camel-track between Ratta and Gogadi villages and not on the cart-track.	543.467
10	2.74	G.T.S. on a conspicuous rock about 66 feet W. of centre of Islāmgarh-Jaisalmer road and about a furlong S. of Gogadi village.	573.691
11	2.12	G.T.S. (Type C) on rock in situ about 132 feet N. of Kandāla village, a disused well is 722 feet and bears 38°. A hollow masonry pillar protects the mark and carries a mark-stone bearing the inscription G.T.S. O the top surface of which is 1 foot vertically above it.	582.101
12	3.08	G.T.S. on rock in situ about 44 yards E. of centre of Islāmgarh-Jaisalmer road and 3 miles S. of Kandāla village. An upright dressed stone 4½ feet high stands about 66 feet N. of the bench mark.	547.072
13	2.98	B.O.M. on rock in situ on slightly high ground about $\frac{1}{2}$ furlong E. of centre of Islāmgarh-Jaisalmer road and about 110 yards E. of an old monumental stone pillar standing by the road side. A small village consisting of a few huts lies about 2½ furlongs S. of the bench mark.	553.458
14	5.06	G.T.S. on NW. corner of 2nd stone step from ground level of the main <i>kund</i> at Bayasaki.	542.669
15	1.91	G.T.S. on rock in situ 236 feet NW. of a thick <i>jand</i> tree about $\frac{1}{2}$ mile ESE. of Baraham Sar village, 33 feet E. of Islāmgarh-Jaisalmer (road) foot-path and 1½ miles S. of Bayasaki village.	611.654

Bench marks falling in Degree Sheet 40 J

Number in Sheet 40 J	Distance from preceding B.M., unless otherwise stated	Description of Bench mark	Height above Mean Sea-Level
	miles	Main-Line 102 (Khanpur to Marwar Pali).	feet
1	1.93 [from B.M. 15491]	on rock in situ 50 feet W. of the camel-track and 72 feet E. of the cart-track from Islāmgarh to Jaisalmer and 270 feet NW. of a thick <i>khejara</i> (jand) tree. A monumental stone pillar stands about 66 feet SW. of the above tree near which the cart and camel-tracks meet.	747.202
2	2.19	on rock in situ 17 feet W. of camel-track between Baysaki and Jaisalmer and 122 feet N. of the spot where the slope ends towards Jaisalmer. The distances and bearings of the surrounding objects are:—solitary stone house about $\frac{1}{2}$ mile and $341^{\circ}$ ; centre of a house on a hill-back about $\frac{1}{2}$ mile and $103^{\circ}$ .	824.763
3 pr	2.41	G.T.C. (Type C) on rock at Jaisalmer, about 400 feet NE. of <i>Malleji-ki-dol</i> (N. gate of the city). The distances and bearings of the surrounding objects are:—monumental stone pillar near a stone house $388^{\circ}$ feet and $358^{\circ}$ ; <i>chim tree</i> $318^{\circ}$ ; centre of easternmost and high bastion of city wall $156^{\circ}$ ; northern of two temples in fort $207^{\circ}$ ; N. gate of city $256^{\circ}$ ; city wall in S. direction 370 feet. A hollow masonry pillar protects the mark and carries a mark-stone with the inscription G.T. Survey C the top surface of which is 1 foot vertically above it.  Note:—From this point emanates a branch-line for standard bench mark at Jaisalmer.	873.968
4	0.05	B.C.M. <sub>1</sub> on rock in situ abutting Jaisalmer city wall, 117 feet from the wicket-gate near the easternmost bastion on the ledge of the scarp.	870.924
5	0.09	B.O.M. <sub>2</sub> on rock in situ 200 feet W. of the W. edge of middle bastion and about 15 feet N. of the city wall, Jaisalmer.	858.523
6	0.01	B.O.M. <sub>3</sub> on rock in situ about 61 feet E. of a thick <i>hair tree</i> and 200 feet N. of the city wall, Jaisalmer.	858.256

## Bench marks falling in Degree Sheet 40 J

Number in Sheet 40J	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 102 (Khanpur to Marwar Pali).</b>	<i>feet</i>
7	0.07	B.M. <sub>4</sub> on rock in situ on the eastern slope of the bank of a small tank close to the N. gate of the city, 80 feet W. of the protecting wall of the embankment of the tank near the road passing through the gate and 80 feet from the stair-cases leading down to the tank, Jaisalmer.	849.349
8	0.08	B.M. <sub>5</sub> on rock in situ 90 feet S. of a thick ( <i>khejara</i> ) jand tree and close to the road passing through the N. gate of the city and about a furlong N. of the gate, Jaisalmer.	854.819
9	0.05	B.M. <sub>6</sub> on rock in situ 60 feet from NW. and NE. corners of a <i>kachcha</i> stone built house and about a furlong E. of the road passing through N. gate of the city, Jaisalmer.	866.901
10	0.06	B.M. <sub>7</sub> on rock in situ 66 yards N. of NW. corner of a stone built house on E. side of a small tank and 145 feet N. of northern of two <i>nām</i> trees on W. edge of the tank, Jaisalmer.	872.826
11	0.10	B.M. <sub>8</sub> on rock in situ about 3 furlongs N. of N. gate of the city and about 176 yards N. of the stone built house on E. side of a small tank, Jaisalmer.	882.114
12	0.08	B.M. <sub>9</sub> on rock in situ about 65 feet W. of the scarf, about 1 furlong NE. of the stone built house on E. side of the tank and about 2 furlongs N. of the easternmost bastion of the city wall at the scarf, Jaisalmer.	888.324
13	0.09	B.M. <sub>10</sub> on rock in situ about $\frac{1}{2}$ furlong E. of the stone built house on E. side of a small tank and about $1\frac{1}{2}$ furlongs N. of the easternmost bastion of the city wall, Jaisalmer.	882.180
14	0.06	B.M. <sub>11</sub> on rock in situ 58 feet E. of the SE. corner and 62 feet E. of the NE. corner of the stone built house on E. side of a small tank, Jaisalmer.	878.116
Note:—The branch-line ends here.			

Bench marks falling in Degree Sheet 40J

Number in Sheet 40J	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 102 (Khanpur to Marwar Pali).	feet
15	0.99 [ from B.M. 3 ]	B.O.M. on boulder stone about 6 inches above ground level, 71 feet E. of a thick <i>khejara</i> ( <i>jand</i> ) tree on N. side of the road, about $\frac{1}{4}$ mile SE. of the Barmer gate of Jaisalmer town, 18 feet N. from the centre of the Jaisalmer-Barmer road and opposite a <i>pakka</i> tomb on the other side of the road.	737.770
16	1.06	B.O.M. on rock in situ about $1\frac{1}{2}$ miles SE. of Jaisalmer town on high ground and about $\frac{1}{2}$ mile NW. of milestone Jaisalmer 2 and 25 feet SW. of Jaisalmer-Barmer road.	762.283
17	1.87	G.T.S. on boulder stone flush with ground level 27 feet O B.M. 3 inches SW. of Jaisalmer-Barmer road, about $\frac{1}{2}$ mile SE. of a <i>kachcha</i> tank on S. side of the road between miles 3 and 4 from Jaisalmer and about $3\frac{1}{4}$ miles S. of Jaisalmer town.	786.733
18	2.04	B.O.M. on rock in situ 32 feet SW. of Jaisalmer-Barmer road and 133 feet from the NW. corner of a solitary stone house between miles 5 and 6 from Jaisalmer.	817.099
19	1.39	G.T.S. on rock in situ 200 feet N. of milestone Jaisalmer 7, O B.M. 81 feet E. of the cart-track and 76 feet W. of foot-path between Jaisalmer and Dabla village. The cart-track and foot-path meet near the milestone.	762.853
20	2.39	B.O.M. on rock in situ about 30 feet E. of Jaisalmer-Barmer road and about 1 furlong S. of milestone Jaisalmer 9. High ground intervenes between milestone and the bench mark.	762.689
21	1.91	G.T.S. on rock in situ on a flat hillock about O B.M. (Type C) $\frac{1}{2}$ mile N. of Akal village and about $\frac{1}{2}$ mile S. of <i>Shrichand-ki-talaiya</i> opposite milestone Jaisalmer 11. A hollow masonry pillar protects the mark and carries a mark-stone bearing the inscription G.T. Survey O the top surface of which is one foot vertically above it. Upper Mark	878.125



## Bench marks falling in Degree Sheet 40K

Number in Sheet 40K	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 150 (Kotri to Barmer).</b>	<i>feet</i>
1	1.26 [from B.M. 221/40G]	+ on top of iron rail embedded in a block of masonry, 9 feet S. of centre of main-line rails and 44 feet NW. of telegraph post No. 360/1 from Kuchāwan Road.	122.472
2	1.46	+ on top of iron rail embedded in a block of concrete, 8½ feet N. of centre of main-line rails and 80 feet NE. of telegraph post No. 358/14 from Kuchāwan Road.	108.893
3	0.35	G.T.S. B.M. on stone block of 1st pier from E., at its NE. end, of railway bridge No. 4, near telegraph post No. 358/6 from Kuchāwan Road.	112.023
4	2.25	G.T.S. B.M. on stone block of 2nd pier from W., at its N. side, of railway bridge No. 2, near telegraph post No. 356/1 from Kuchāwan Road.	170.245
5	0.70	+ on top of iron rail embedded in a block of concrete, 8½ feet NW. of centre of main-line rails and 92 feet N. of telegraph post No. 355/8 from Kuchāwan Road.	173.335
6	0.39	G.T.S. B.M. on stone at base of SW. distant signal of Vasarbah railway station, about 70 feet NW. of telegraph post No. 354/22 from Kuchāwan Road.	159.522
7	1.15	G.T.S. B.M. on stone at base of NE. distant signal of Vasarbah railway station, about 30 feet W. of telegraph post No. 353/19 from Kuchāwan Road.	162.093
8	0.98	G.T.S. B.M. on stone block of middle pier, at its SE. side, of railway bridge No. 1, between telegraph posts Nos. 352/19 and 352/20 from Kuchāwan Road.	195.518
9	0.86	+ on top of iron rail embedded in a block of concrete, 8½ feet N. of centre of main-line rails and 54 feet NW. of telegraph post No. 351/23 from Kuchāwan Road.	215.386

Bench marks falling in Degree Sheet 40 K

Number in Sheet 40K	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 150 (Kotri to Barmer).	feet
10	1.31	+ on top of iron rail embedded in a block of concrete, 8½ feet S. of centre of main-line rails, 51 feet N. of telegraph post No. 350/16 from Kuchūwan Road and 2 feet E. of a rail-post bearing No. 17.	190.090
11	0.84	+ on top of iron rail embedded in a block of concrete, 9 feet S. of centre of main-line rails, 83 feet NE. of telegraph post No. 349/20 from Kuchūwan Road, about 10 feet NW. of gradient rail-post and about ½ mile NW. of Bhitāla village.	165.248
<i>Note:—From this point emanates a branch-line to Bhitāla G. T. Survey Hill Station.</i>			
12 <i>rr</i>	1.98	⊙ on top or upper surface of circular pillar, flush with ground level, of Bhitāla G. T. Survey Hill Station, lat. 25° 38' 47".02, long. 70° 08' 44".81. This is a principal station of the Eastern Sind Meridional Series and is situated on a long narrow sand hill running in the usual NE. and SW. direction, about 3½ miles SSW. of Lapla village and about 1½ miles SW. of Bhitāla village. It is in the lands of Khara Lapla village, <i>taluka</i> Umarkot, district Thar and Parkar (Sind). The station consists of a masonry pillar, surrounded by an annular wall, 3 feet deep and 3½ feet in diameter. It contains 3 mark-stones, one at the foundation, another 1 foot above it and the third on the upper surface of the pillar which is flush with the ground level. The distances and bearings of the surrounding objects are:—Lapla village 3½ miles NNE. and 20°; Bhitāla village 1½ miles NE. and 33°; Khokhropar railway station 5 miles NE. and 38°. A rectangular protecting pillar of bricks 3 feet square and 3½ feet high stands over the circular pillar of the station. The station circular pillar with its top mark-stone was found intact and in good condition while the protecting pillar built over the station pillar was found in broken state. After the top mark-stone was connected the protecting pillar was rebuilt with bricks only, 2 feet square and 2 feet high.	360.303
<i>Note:—The branch-line ends here.</i>			

## Bench marks falling in Degree Sheet 40K

Number in Sheet 40K	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 150 (Kotri to Barmer).</b>	<i>feet</i>
13	0.80 [from B.M. 11]	+ on top of iron rail embedded in a block of concrete, 8½ feet NW. of centre of main-line rails, 78½ feet NW. of telegraph post No. 348/24 and 101 feet NE. of mile-plate No. 349 from Kuchāwan Road.	192.047
14	1.01	797 + on top of iron rail embedded in a block of concrete, between main-line rails, 178½ feet NE. of mile-plate No. 348 and 38½ feet NW. of telegraph post No. 347/24 from Kuchāwan Road.	229.280
15	0.71	G.T.S. on stone at base of SW. distant signal of Khokhropar railway station, opposite and NW. of telegraph post No. 347/7 from Kuchāwan Road.	210.915
16	0.50	G.T.S. on stone flooring against wall of S. veranda, at its NE. side, of railway rest-house at Khokhropar railway station.	198.448
17	0.18	G.T.S. at Khokhropar railway station. Interred (Type B) 187 feet SE. of station building and 3 feet below ground level. The distances and bearings of the surrounding objects are:— S.W. corner of station building 189 feet and 817°; SE. corner of same 189 feet and 325; centre of main-line rails 147 feet N; telegraph post No. 346/18 from Kuchāwan Road 70 feet and 342°; NW. corner of railway water-pump house 171 feet 48°. A rail-post with an iron plate bearing letters G.T.S. stands 4 feet SE. of the bench mark.	196.670
		<i>Note:—The foundation is in sandy soil and the nearest railway lines are about 100 feet distant.</i>	
18	1.25	+ on top of iron rail embedded in a block of concrete, 8½ feet NW. of centre of main-line rails and 84 feet N. of telegraph post No. 345/11 from Kuchāwan Road.	220.788
19	1.47	B.O.M. on stone at N. plinth below 4th window from W. and 41½ feet from NW. corner of railway gang quarters No. G. 23 and 37 feet S. of telegraph post No. 343/25 from Kuchāwan Road.	235.399

Bench marks falling in Degree Sheet 40 K.

Number in Sheet 40K	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 150 (Kotri to Barmer).</b>	<i>feet</i>
20	1.05	+ on top of iron rail embedded in a block of concrete, 8½ feet N. of centre of main-line rails, 108 feet NE. of telegraph post No. 342/24 from Kuchāwan Road.	212.638
21	1.23	+ on top of rail embedded in a block of concrete, 8½ feet S. of centre of main-line rails and 94 feet W. of telegraph post No. 341/17 from Kuchāwan Road.	230.663
22	1.09	G.T.S. O B.M. on stone at base of W. home signal of Munabao railway station.	258.930
23	0.80	G.T.S. O B.M. on stone at base of NE. distant signal of Munabao railway station.	248.769
24	1.65	+ on top of iron rail embedded in a block of concrete, 8½ feet NW. of centre of main-line rails, 16½ feet NW. of rail-post bearing No. 4 and 43 feet NW. of telegraph post No. 338/4 from Kuchāwan Road.	261.535
25	0.89	+ on top of iron rail embedded in a block of concrete, 8½ feet N. of centre of main-line rails and 91 feet NNE. of telegraph post No. 337/7 from Kuchāwan Road.	275.887
26	1.32	+ on top of iron rail embedded in a block of concrete, 8½ feet N. of centre of main-line rails, 18½ feet N. of rail-post bearing No. 7 and 72 feet NW. of telegraph post No. 335/25 from Kuchāwan Road.	310.118
27	1.06	G.T.S. O B.M. on stone at base of W. home signal of Jaisingder railway station and opposite telegraph post No. 334/23 from Kuchāwan Road.	295.709
28	0.19	G.T.S. [Symbol] B.M. at Jaisingder railway station. Interred (Type B) 188 feet S. of station building and 2½ feet below ground level. The distances and bearings of the surrounding objects are:— A.D. 1924 telegraph post No. 334/18 from Kuchāwan Road 68 feet and 326°; SW. corner of station building 189 feet and 327°; SE. corner of same 189 feet and 338°; centre of	283.911

## Bench marks falling in Degree Sheet 40 K

Number in Sheet 40 K	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 150 (Kotri to Barmer).	feet
28	(Contd.)	main-line rails 148 feet N. A rail-post with an iron plate bearing letters <sup>G.T.S.</sup> <sub>B.M.</sub> stands 4 feet S. of the bench mark. <i>Note:—The foundation is in hard sandy soil and the nearest railway lines are about 120 feet distant.</i>	283·911
29	0·60	<sup>G.T.S.</sup> <sub>B.M.</sub> on stone at base of E. distant signal of Jaisingder railway station near telegraph post No. 334/3 from Kuchāwan Road.	289·972
30	2·10	B.O.M. on top of milestone No. 333 from Kuchāwan Road, 28 feet NW. of centre of main-line rails.	320·261
31	1·01	B.O.M. on top of milestone No. 331 from Kuchāwan Road, 20 feet N. of centre of main-line rails.	337·364
32	1·00	B.O.M. on top of milestone No. 330 from Kuchāwan Road, 16½ feet N. of centre of main-line rails.	320·580
33	0·78	+ on top of iron rail embedded in a block of concrete, 8½ feet N. of centre of main-line rails 17 feet N. of a rail-post and 82 feet NE. of telegraph post No. 329/7 from Kuchāwan Road.	344·620
34	0·96	<sup>G.T.S.</sup> <sub>B.M.</sub> on stone at base of W. distant signal of Lilma railway station, opposite telegraph post No. 328/6 from Kuchāwan Road.	362·993
35	1·15	<sup>G.T.S.</sup> <sub>B.M.</sub> on stone at base of E. distant signal of Lilma railway station, between telegraph posts Nos. 327/2 and 327/3 from Kuchāwan Road.	373·069
36	1·09	B.O.M. on top of milestone No. 326 from Kuchāwan Road, 16 feet N. of centre of main-line rails.	404·183
37	1·47	+ on top of iron rail embedded in a block of concrete, 8½ feet N. of centre of main-line rails, 14 feet N. of rail-post No. 19 and 53 feet NW. of telegraph post No. 324/14 from Kuchāwan Road.	415·429
38	0·37	<sup>G.T.S.</sup> <sub>B.M.</sub> on brick on S. parapet of railway culvert near telegraph post No. 324/5 from Kuchāwan Road.	429·385

## Bench marks falling in Degree Sheet 40 K

Number in Sheet 40 K	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 150 (Kotri to Barmer).</b>	<i>feet</i>
39	1.17	+ on top of iron rail embedded in a block of concrete, 8½ feet N. of centre of main-line rails and 29 feet SW. of milestone No. 323 from Kuchāwan Road.	421.138
40	1.14	G.T.S. O B.M. on stone at base of W. distant signal of Tamlor railway station, near telegraph post No. 321/22 from Kuchāwan Road.	444.306
41 PR	0.61	G.T.S. [Symbol] B.M. A.D. 1924 at Tamlor railway station. Interred 188 (Type B) feet S. of station building and 3 feet below ground level. The distances and bearings of the surrounding objects are:— telegraph post No. 321/7 from Kuchāwan Road 80 feet and 339°; SW. corner of the station building 190 feet and 339°; SE. corner of same 190 feet and 350°; centre of main-line rails 147 feet N. A rail-post with an iron plate bearing letters G.T.S. B.M. stands 3 feet 9 inches S. of the bench mark. 3 Ft. 9 In.	436.639
		<i>Note:—The foundation is in sandy soil and the nearest railway lines are about 100 feet distant.</i>	
42	0.54	G.T.S. B.M. on stone at base of E. distant signal of Tamlor railway station, between telegraph posts Nos. 320/17 and 320/18 from Kuchāwan Road.	447.528
43	0.73	B.O.M. on top of milestone No. 320 from Kuchāwan Road, 15½ feet N. of centre of main-line rails.	459.145
44	1.08	+ on top of iron rail embedded in a block of concrete, 8½ feet S. of centre of main-line rails, 29 feet NE. of telegraph post No. 318/23 from Kuchāwan Road.	462.894
45	0.95	B.O.M. on top of milestone No. 318 from Kuchāwan Road, 15 feet N. of centre of main-line rails.	466.541
46	1.17	G.T.S. O B.M. on stone at base of W. distant signal of Gadra Road railway station, near telegraph post No. 316/23 from Kuchāwan Road.	479.113

## Bench marks falling in Degree Sheet 40 K

Number in Sheet 40 K	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 150 (Kotri to Barmer).</b>	<i>feet</i>
47	0.49	O.T.S. on stone at N. curb of circular masonry reservoir at Gadra Road railway station, 92 feet S. of centre of main-line rails, 67½ feet SW. of telegraph post No. 316/10 and 9½ feet SE. of telegraph post No. 316/11 from Kuchāwan Road.	489.506
48	0.20	O.T.S. on stone on veranda flooring against W. wall, 4 feet from its N. corner of railway rest-house at Gadra Road railway station, opposite telegraph post No. 316/4 from Kuchāwan Road.	487.995
		<i>Note:—From this point emanates a branch-line to Standard Bench Mark, Gadra Road.</i>	
49 pp	0.02	Top of concrete monolith (no inscription) of Standard Bench Mark (Minor Type) at Gadra Road railway station. (Primary Mark). It is situated in the extreme NW. corner of compound of railway rest-house at Gadra Road and is 50 feet 5 inches and 85°, 33 feet and 94° and 49 feet and 122° from NE., NW. and SW. corners respectively of the rest-house. It consists of a copper bolt on top of concrete monolith, 1 foot square at base and 3 feet high, the upper 3 inches being dressed to the form of a frustum of a pyramid terminating in a smooth square of about 3-inch side. The monolith rests on a bed of concrete 5 feet square and 3 feet deep, the upper surface of the monolith being 1 foot above ground level. It is surrounded by a masonry wall about 5 feet square (outside), 1 foot thick and 2½ feet high. It includes two supplementary marks one of which is on S. side of the monolith consisting of hard stone prism 8 inches long and 3 inches square, its smooth top flush with the surface of the concrete bed and the second a stout iron bolt 1 inch square and 8 inches long built horizontally into the N. masonry wall and projecting about 2 inches out of it. The inner enclosure is filled in with rubble to a height of about 6 inches above the top surface of the monolith and the rest with earth.	488.361
		<i>Note:—The foundation is in sandy soil and the nearest railway lines are about 72 feet distant.</i>	

Bench marks falling in Degree Sheet 40K

Number in Sheet 40K	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 150 (Kotri to Barmer).</b>	<i>feet</i>
50	0.00	Top of stone prism (no inscription) on S. side of the monolith of Standard Bench Mark (Minor Type) at Gadra Road. (Supplementary Mark).	487.434
51	0.00	Iron bolt (no inscription) let into the N. masonry wall of Standard Bench Mark (Minor Type) at Gadra Road. (Supplementary Mark).	488.402
		<i>Note:—The branch-line ends here.</i>	
52	0.49 [from B.M. 48]	a.T.S. O B.M. on stone at base of E. distant signal of Gadra Road railway station, opposite telegraph post No. 315/17 from Kuchāwan Road.	489.333
53	0.68	+ on top of iron rail embedded in a block of concrete, 8½ feet N. of centre of main-line rails, 114½ feet W. of milestone No. 315 from Kuchāwan Road.	503.268
54	0.99	B.O.M. on top of milestone No. 314 from Kuchāwan Road, 17 feet N. of centre of main-line rails.	532.947
55	1.26	+ on top of iron rail embedded in the ground, 14 feet N. of centre of main-line rails and 78 feet N. of telegraph post No. 312/18 from Kuchāwan Road. G. G. Y. It bears an iron plate with letters P. W. Gang- No 9   P. W. Gang- No 8	523.487
56	0.78	B.O.M. on top of milestone No. 312 from Kuchāwan Road, 17 feet N. of centre of main-line rails.	529.832
57	1.69	+ on top of iron rail embedded in a block of concrete, 8½ feet S. of centre of main-line rails, 16½ feet S. of rail-post bearing No. 34 and 91 feet W. of telegraph post No. 310/8 from Kuchāwan Road.	548.614
58	1.33	B.O.M. on top of milestone No. 309 from Kuchāwan Road, 16 feet N. of centre of main-line rails.	559.559
59	1.42	a.T.S. O B.M. on stone on 1st pier from W., at its N. end, of railway bridge No. 80, between telegraph posts Nos. 307/14 and 307/15 from Kuchāwan Road and about ½ mile W. of Gagra railway station.	566.902



## Bench marks falling in Degree Sheet 40 K

Number in Sheet 40 K	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 150 (Kotri to Barmer).</b>	<i>feet</i>
60	0.44	G.T.S. B.M. on stone at base of W. home signal of Gagraia railway station, opposite telegraph post No. 307/4 from Kuchāwan Road.	567.503
61	0.17	G.T.S. B.M. A.D. 1924 at Gagraia railway station. Interred 152 feet S. of station building and 3 feet below ground level. The distances and bearings of the surrounding objects are:—SW. corner of station building 151 feet and 5°; SE. corner of same 153 feet and 17°; centre of main-line rails 102 feet N.; telegraph post No. 306/24 from Kuchāwan Road 34 feet and 6°. A rail-post with an iron plate bearing letters B.M. 6 Ft. stands 6 feet S. of the bench mark.	562.069
		<i>Note:—The foundation is in sandy soil and the nearest railway lines are about 70 feet distant.</i>	
62	0.64	G.T.S. B.M. on stone at base of E. distant signal of Gagraia railway station, near telegraph post No. 306/9 from Kuchāwan Road.	572.202
63	1.84	B.O.M. on top of milestone No. 305 from Kuchāwan Road, 24 feet N. of centre of main-line rails.	585.496
64	1.64	+ on top of iron rail embedded in a block of concrete, 8½ feet N. of centre of main-line rails, 104 feet NW. of telegraph post No. 303/9 from Kuchāwan Road. A rail-post bearing No. 40 stands one foot W. of the bench mark.	605.353
65	0.94	+ on top of iron rail embedded in a block of concrete, 8½ feet N. of centre of main-line rails and 8½ feet N. of telegraph post No. 302/11 from Kuchāwan Road. A rail-post bearing No. 42 stands one foot E. of the bench mark.	629.115
66	1.26	G.T.S. B.M. on stone at base of W. distant signal of Ramsar railway station, opposite telegraph post No. 301/4 from Kuchāwan Road.	617.700

Bench marks falling in Degree Sheet 40 K

Number in Sheet 40 K	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 150 (Kotri to Barmer).	feet
67	0.58	<p>G.T.S. at Ramsar railway station. Interred 155 feet S. of station building and 3 feet below ground level. The distances and bearings of the surrounding objects are:— SW. corner of station building 155 feet and 350°; SE. corner of same 157 feet and 3°; centre of main-line rails 105 feet N.; telegraph post No. 300/15 from Kuchāwan Road 33 feet and 350°. A rail-post with an iron plate bearing letters G.T.S. B.M. stands 6 feet S. of the bench mark.   O.I.   A.D. 1924</p> <p><i>Note:—The foundation is in sandy soil and the nearest railway lines are about 60 feet distant.</i></p>	610.006
68	0.62	<p>G.T.S. on stone at base of E. distant signal of Ramsar railway station, opposite telegraph post No. 299/24 from Kuchāwan Road.   B.M.</p>	620.760
69	1.10	<p>+ on top of iron rail No. 35, embedded in the ground close to another iron rail embedded in a block of concrete, 8½ feet N. of centre of main-line rails and 53 feet NE. of telegraph post No. 298/23 from Kuchāwan Road.</p>	636.115
70	0.99	<p>+ on top of iron rail embedded in a block of concrete, 8½ feet S. of centre of main-line rails, 66 feet NE. of telegraph post No. 297/22 from Kuchāwan Road and 16 feet S. of rail-post bearing No. 46.</p>	639.088
71	1.25	<p>G.T.S. on stone on 1st pier from E., at its N. end, of railway bridge No. 79, between telegraph posts Nos. 296/16 and 296/17 from Kuchāwan Road.   B.M.</p>	657.996
72	0.40	<p>G.T.S. on stone on 2nd pier from W., at its S. end, of railway bridge No. 77, near telegraph post No. 296/7 from Kuchāwan Road.   B.M.</p>	657.549
73	0.70	<p>G.T.S. on stone on 1st pier from W., at its N. end, of railway bridge No. 74, between telegraph posts Nos. 295/14 and 295/15 from Kuchāwan Road.   B.M.</p>	658.225

## Bench marks falling in Degree Sheet 40 K

Number in Sheet 40 K	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 150 (Kotri to Barmer).</b>	<i>feet</i>
74	0.86	a.T.S. B.M. on stone on 2nd pier from W., at its S. end, of railway bridge No. 73, between telegraph posts Nos. 294/16 and 294/17 from Kuchāwan Road.	680.452
75	1.42	a.T.S. B.M. on stone at base of W. distant signal of Bhachbhar railway station, between telegraph posts Nos. 293/7 and 293/8 from Kuchāwan Road.	688.027

Bench marks falling in Degree Sheet 40 N

Number in Sheet 40 N	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 102 (Khanpur to Marwar Pali).</b>	<i>feet</i>
1	3.43 [from B.M. 21/40J]	G.T.S. on rock in situ about 154 yards SE. of milestone B.M. Jaisalmer 14 and about 68 feet NE. of Jaisalmer-Barmer road.	868.401
2	2.10	G.T.S. on rock in situ about 88 yards S. of milestone B.M. Jaisalmer 16 and about 30 feet W. of Jaisalmer-Barmer road.	913.286
3	1.06	B.O.M. on top of milestone Jaisalmer 17 on W. side of Jaisalmer-Barmer road.	868.447
4	2.10	B.O.M. on top of milestone Jaisalmer 19 on W. side of Jaisalmer-Barmer road.	856.662
5	0.95	G.T.S. on rock in situ on a hillock about $\frac{1}{4}$ mile B.M. (Type C) S. of Chhor village and about the same distance N. of a big water-tank opposite milestone Jaisalmer 20. A hollow masonry pillar protects the mark and carries a mark-stone bearing the inscription G.T. Survey O the top surface of which is 1 foot vertically above it. Upper Mark	867.934
6	1.29	B.O.M. on top of milestone Jaisalmer 21 on W. side of Jaisalmer-Barmer road.	852.079
7	1.03	B.O.M. on top of milestone Jaisalmer 22 on W. side of the Jaisalmer-Barmer road.	859.173
8	1.36	G.T.S. on W. end of 4th step from bottom of stairs leading to the temple of <i>Dādūji</i> on an isolated stone building about $\frac{1}{4}$ mile NW. of Devikot village and on E. side of Jaisalmer-Barmer road. B.M.	865.676
9	0.85	G.T.S. on rock in situ about $\frac{1}{4}$ mile S. of Devikot village B.M. about 154 yards S. of milestone Jaisalmer 24, about 19 feet W. of centre of Jaisalmer-Barmer road and opposite a monumental tomb.	869.221
10	0.89	B.O.M. on top of milestone Jaisalmer 25 on W. side of Jaisalmer-Barmer road.	887.499
11	2.03	B.O.M. on top of milestone Jaisalmer 27 on W. side of Jaisalmer-Barmer road.	950.949

## Bench marks falling in Degree Sheet 40N

Number in Sheet 40N	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 102 (Khanpur to Marwar Pali).</b>	<i>feet</i>
12	1.04	B.O.M. on top of milestone Jaisalmer 28 on E. side of Jaisalmer-Barmer road.	927.704
13	1.05	B.O.M. on top of milestone Jaisalmer 29 on W. side of Jaisalmer-Barmer road.	909.206
14	1.65	G.T.S. on 1st step (from bottom) of flight of steps leading to <i>Mātaji-kā-thān</i> about $\frac{1}{2}$ mile W. of Jaisalmer-Barmer road between miles 30 and 31 from Jaisalmer.	933.435
15	0.64	B.O.M. on top of milestone Jaisalmer 31 on E. side of Jaisalmer-Barmer road.	901.087
16	2.06	B.O.M. on top of milestone No 33 from Jaisalmer on W. side of Jaisalmer-Barmer road.	924.871
17	1.06	B.O.M. on top of milestone No. 34 from Jaisalmer on W. side of Jaisalmer-Barmer road.	950.348
18	1.06	B.O.M. on top of milestone No. 35 from Jaisalmer on W. side of Jaisalmer-Barmer road.	938.854
19	1.06	B.O.M. on top of milestone No. 36 from Jaisalmer on W. side of Jaisalmer-Barmer road.	900.362
20	2.71	G.T.S. at Vinjoi. Interred 2 feet below ground level about $\frac{1}{2}$ mile S. of the village on W. side of Jaisalmer-Barmer road. The distances and bearings of the surrounding objects are:—SW. bastion of fort in village 354°; centre of Jaisalmer-Barmer road 47 feet; embankment of a <i>hachcha</i> tank 96 feet. A masonry referring pillar with a slab bearing the inscription G.T.S. B.M. stands 8 feet W. of the bench mark. 6 Ft.	839.069
21	1.36	B.O.M. on top of milestone No. 40 from Jaisalmer on W. side of Jaisalmer-Barmer road.	865.629
22	1.04	B.O.M. on top of milestone No. 41 from Jaisalmer on W. side of Jaisalmer-Barmer road.	888.594

Bench marks falling in Degree Sheet 40 N

Number in Sheet 40 N	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 102 (Khanpur to Marwar Pali).</b>	<i>feet</i>
23	0.92	G.T.S. on E. side of 1st step (from bottom) of circular flight of steps leading to the top of an obelisk which separates Jaisalmer State from that of Jodhpur. It is close to pond and just opposite milestone No. 42 from Jaisalmer on the Jaisalmer-Barmer road.	912.625
24 pp	4.26	G.T.S. at Khodiyal. Interred about 2 feet below ground level about $\frac{1}{4}$ mile SW. of the village on E. side of Jaisalmer-Barmer road. A.D. 1921 (Type B) The distances and bearings of the surrounding objects are:—Centre of Jaisalmer-Barmer road $35\frac{1}{2}$ feet; centre of a thick <i>jand</i> ( <i>khejara</i> ) tree NW. of a <i>kachcha</i> tank 587 feet and $30^{\circ}$ SW. corner of a small temple on N. side of the tank 800 feet and $38^{\circ}$ ; S. edge of a <i>kachcha</i> tank 350 feet. A masonry referring pillar with a stone slab bearing the inscription G.T.S. B.M. stands 8 feet E. of the bench mark. 6 Ft.	881.680
25	2.22	G.T.S. on SW. corner stone of plinth of a temple on E. side of Jaisalmer-Barmer road and about a furlong N. of Rajrail village.	868.993
		<i>Note:—From this point emanates a branch-line to Mandai h.s.</i>	
26	1.22	B.O.M. on boulder stone partly buried in the ground about $1\frac{1}{2}$ miles W. of Rajrail village, about $\frac{1}{4}$ mile N. of <i>Dhamis</i> on a hillock and 105 feet NW. of a large <i>khejara</i> ( <i>jand</i> ) tree at the NW. corner of a dry tank.	888.748
27	1.64	B.O.M. on rock in situ about 8 miles W. of Rajrail village, about $\frac{1}{2}$ mile E. of Bhailar-ka-bhākhar on which Mandai h.s. is situated and about 88 yards SE. of <i>nāla</i> coming from the hill.	950.724
28	0.53	B.O.M. on ground rock in the centre of the highest peak of Bhailar-ka-bhākhar, 11 feet E. of Mandai h.s. and about 3 miles W. of village of Rajrail in Jodhpur State.	1115.080
29	0.01	⊙ on the ground rock of Mandai h.s. lat. $26^{\circ} 20' 59''$ . 81, long. $71^{\circ} 10' 36''$ . 23. This is a secondary station of the Jodhpur Meridional series and stands on the	1115.246

## Bench marks falling in Degree Sheet 40 N

Number in Sheet 40 N	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	<b>Main-Line 102 (Khanpur to Marwar Pali).</b>	feet
29	(Contd.)	highest part of the well-known hill of Bhailar-ka-bhākhar marking the boundaries between Jodhpur and Jaisalmer States and between the villages of Rajrail and Khorai of the Jodhpur State and Mandai of the Jaisalmer State: <i>parganas</i> Seu and Vinjori, Jodhpur and Jaisalmer States. The approximate azimuths and distances of the circumjacent villages are:—Harwa 1° and 6 miles; Mandai (after which the station is called) 180° and 2 miles; Rajrail 274° and 2½ miles. (1875-76).	1115·246
		<i>Note:—The branch-line ends here.</i>	
30	3·08 from B.M.25	B.M. on top of western of two conical monumental stones about 3 feet high, about 1½ furlongs W. of the Jaisalmer-Barmer road, about ½ furlong NW. of a dry pond close to the road and about 2½ miles S. of Rajrail village.	896·284
31	1·48	B.M. on top of a monumental stone about 4 feet high, about 44 yards E. of the Jaisalmer-Barmer road, about 100 yards S. of an old stone house and about 4½ miles S. of Rajrail village.	902·786
32	1·51	B.O.M. on boulder stone about 88 yards NW. of Jaisalmer-Barmer road, about 2 miles N. of Gunga village and about midway between the above road and the top of the ridge and on its slope.	859·087
33	1·94	G.T.S. B.M. A.D. 1921 (Type B) at Gunga. Interred about 2 feet below ground level about ¾ mile NE. of the village and 31 feet W. of centre of Jaisalmer-Barmer road. The distances and bearings of the surrounding objects are:—W. embankment of a dry <i>kachcha</i> tank on E. side of road 123 feet; centre of a thick <i>jand</i> ( <i>khejara</i> ) tree on N. edge of the tank 438 feet and 31½°. A masonry referring pillar with a stone slab bearing the inscription G.T.S. B.M. stands 8½ feet NW. of the bench mark.	792·626
34	2·74	G.T.S. B.M. on top of a square stone block fixed in ground and projecting about a foot above ground level, about 132 yards W. of centre of Jaisalmer-Barmer road, about 2½ miles S. of Gunga village and about a mile N. of Sheo village. A monumental stone about 3 feet high stands about a furlong N. of it.	772·945

Bench marks falling in Degree Sheet 40 N

Number in Sheet 40 N	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 102 (Khanpur to Marwar Pali).	feet
35	1.46	G.T.S. on stone platform, at its E. edge, on which a B.M. monumental stone is erected, about 110 yards W. of Jaisalmer-Barmer cart-road and about 1½ fur- longs S. of Sheo village.	774.864
36	1.98	B.M. on top of a huge stone fixed in the ground and pro- jecting about 2 feet above ground level, about 3 chains W. of the Barmer-Jaisalmer cart-road and about 2½ miles S. of Sheo village.	715.867
37	3.88	G.T.S. at Nimbasar. Interred about 2 feet below B.M. (Type D) ground level, about ¼ mile SE. of the A.D. 1921 village and 95 feet NE. of centre of Jaisalmer-Barmer road. The distances and bearings of the surrounding objects are:—centre of stone platform on which a monumental stone is fixed 158 feet and 219½°. A masonry referring pillar with a stone slab bearing the G.T.S. B.M. inscription stands 8½ feet NE. of the bench mark. 6 Ft.	713.261
38	4.12	G.T.S. on top of stone fixed in the ground and projecting B.M. about 1½ feet above ground level, about 66 yards W. of the Jaisalmer-Barmer cart-road about ¼ mile W. of Nimla village.  <i>Note:—From this point emanates a branch-line to Nimla h.s.</i>	676.901
39	1.22	⊙ on ground level mark-stone of Nimla h.s. lat. 26° 3' 9" .56, long. 71° 19' 58" .40. This is a secondary station of the Jodhpur Meridional Series and stands on a high sand hill locally known as <i>Chatalia</i> or <i>Tukhia Thalli</i> , in the lands of Nimla village: <i>pargana</i> Sen, Jodhpur State. The approximate azimuths and distances of the adjacent villages are:—Nimla 162° and ¼ mile; Barka 326° and 4 miles. It is marked by a pillar cemented with clay the lower portion being 5 feet square and 2 feet 9 inches high and the upper portion circular 2 feet 4 inches high and 2½ feet in diameter and surrounded by an annular wall. It has three mark-stones, one at base, the second on surface of the square portion and the third at top of pillar flush with the hill top. (1875-76).  <i>Note:—The branch-line ends here.</i>	791.014



## Bench marks falling in Degree Sheet 40 N

Number in Sheet 40 N	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 102 (Khanpur to Marwar Pali).</b>	<i>feet</i>
40	1.99 [from B.M. 38]	G.T.S. B.M. on zinc plate fixed to the root of a solitary <i>jand</i> tree about 66 feet W. of centre of the Jaisalmer-Barmer road and about $1\frac{1}{4}$ miles S. of Nimla village.	647.803
41	0.84	B.O.M. on top of stone projecting about $1\frac{1}{2}$ feet above ground level, about 66 feet E. of Jaisalmer-Barmer road and about $1\frac{1}{4}$ miles N. of Bhadka village.	647.911
42	1.73	G.T.S. B.M. A.D. 1921 at Bhadka. Interred $1\frac{1}{2}$ feet below ground level about 1 furlong W. of the village and 50 feet SW. of the Jaisalmer-Barmer road. The distances and bearings of the surrounding objects are:— W. corner of a big <i>kachcha</i> house N. of village 442 feet and $105^\circ$ ; temple inside village $137^\circ$ . A masonry referring pillar with a stone tablet bearing the inscription G.T.S. B.M. 6 Ft. stands 9 feet SW. of the bench mark.	642.056

Bench marks falling in Degree Sheet 400

Number in Sheet 400	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 102 (Khanpur to Marwar Pali).</b>	<i>feet</i>
1	6.92 [from B.M. 42 43 N.]	G.T.S. B.M. (Type B) at Kapurli. Interred about 2 feet below ground level about $\frac{1}{4}$ mile N. of the village and 80 feet SW. of the Jaisalmer-Barmer road. The distances and bearings of the surrounding objects are:—western of two <i>jand</i> trees near a pond N. of the village 687 feet and $198^{\circ}$ ; a <i>piloo</i> tree in a field about 726 feet and $311^{\circ}$ . A masonry referring pillar with a stone slab bearing the inscription G.T.S. B.M. stands 9 feet SW. of the bench mark. A.D. 1921	602.996
2	4.88	B.M. on top of a stone projecting about 1 foot above ground level, about 132 feet E. of the Jaisalmer-Barmer road and about $2\frac{1}{4}$ miles N. of Jalipa village.	579.369
3	2.36	G.T.S. B.M. on top of a pyramidal stone projecting about $2\frac{1}{4}$ feet above ground level, about 198 feet W. of the water pond embankment at Jalipa village, about $\frac{1}{4}$ mile S. of the village (now desolated) and about the same distance W. of the Jaisalmer-Barmer road.	599.727
4	1.11	B.M. on top of a stone projecting about $1\frac{1}{4}$ feet above ground level, about 20 feet W. of the Jaisalmer-Barmer road and on a slightly high ground about 1 mile S. of the water pond at Jalipa village.	600.971
5	3.93	4 on top of level pointing rail fixed on E. side of the railway line opposite telegraph post No. 263/14.  <i>Note:—From this point emanates a branch-line.</i>	554.260
6	0.60	G.T.S. B.M. on 2nd pier from west, on N. side of railway bridge No. 42 near telegraph post No. 264/5.	567.964
7	0.58	G.T.S. B.M. on extreme NE. pier of railway bridge No. 43 opposite telegraph post No. 264/19.	579.218
8	2.00	G.T.S. B.M. on stone flooring, against wall, of NE. veranda of railway rest-house, Barmer.  <i>Note:—From this point emanates an off-shoot for the Standard Bench Mark at Barmer.</i>	634.690

## Bench marks falling in Degree Sheet 400

Number in Sheet 400	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 102 (Khanpur to Marwar Pali).</b>	<i>feet</i>
9	0.21	$\begin{smallmatrix} \text{GTS} \\ \text{O} \\ \text{B.M.} \end{smallmatrix}$ on stone flooring of 3rd class waiting shed and at NW. corner of 3rd class booking office of Barmer railway station.	635.755
10	0.04	B.O.M. on E. end of single step leading to N. veranda of post office, Barmer.	634.388
11	0.31	B.O.M. on stone coping of water-tank on right side of compound of Hem sarai, Barmer.	655.295
12	0.03	$\begin{smallmatrix} \text{O} \\ \text{B.M.} \end{smallmatrix}$ on 3rd stone ring from E. of back veranda of Hem sarai, Barmer.	657.485
13	0.07	B.O.M. on 4th stone ring from W. of veranda of the house of Seth Kanni Ram, Chamun Ram, Barmer.	661.968
14	0.06	$\begin{smallmatrix} \text{GTS} \\ \text{O} \\ \text{B.M.} \end{smallmatrix}$ on stone flooring, against wall, of platform outside police station, Barmer.	662.729
15	0.05	B.O.M. at S. end of central step of front veranda of civil dispensary, Barmer.	666.464
16	0.05	B.O.M. at W. end of uppermost step of S. veranda of court-house, Barmer.	669.408
17	0.02	B.O.M. on stone flooring of W. vestibule of entrance gate of court-house compound, Barmer.	669.305
18	0.04	B.O.M. on plinth at SE. corner of school building, Barmer.	670.167
19	0.04	B.O.M. on flooring of veranda, about 1 foot E. of stairs, of the house of Seth Ram Lal, Barmer.	676.125
20	0.04	B.O.M. on stone flooring of veranda on E. side of the stairs leading to the house of Genesh Mall, Barmer.	680.461
21	0.06	B.O.M. on stone ring fixed to the platform, on SE. side of stairs, of the house of Seth Baj Lal, Barmer.	677.202
22	0.05	B.O.M. on stone coping of veranda, near W. of its first pillar from W., of the house of Balkishen Sara, Barmer.	672.846
Note:—The off-shoot ends here.			

Bench marks falling in Degree Sheet 400

Number in Sheet 400	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 102 (Khanpur to Marwar Pali).</b>	<i>feet</i>
23pp	1.30. [from B.M. 8]	G.T.S. O B.M. (Type C) on rock in situ at Barmer, on N. side of the J. B. Ry. line, near N. edge of a dry stream through which a cart-track runs. The distances and bearings of the surrounding objects are:—telegraph post No. 267/25, 177 feet and 141°; milestone No. 268, 122 feet and 170°. A hollow masonry pillar protects the mark and carries a mark-stone bearing the inscription G. T. Survey O the top surface of which is 1 foot Upper Mark vertically above it.	675.758
		<i>Note:—The branch-line ends here.</i>	
24	1.62 [from B.M. 5]	G.T.S. O B.M. on top of milestone No. 262 on W. side of J. B. Ry. line.	540.329
25	1.80	G.T.S. O B.M. on NW. end of NE. abutment of railway bridge No. 41 between telegraph posts Nos. 260/5 and 260/6.	515.502
26	0.32	G.T.S. O B.M. on N. parapet of a railway culvert about 330 feet NE. of Utarlai railway station.	514.479
27	1.38	G.T.S. O B.M. on S. end of 9th pier from E. of railway bridge No. 39 between telegraph posts Nos. 258/13 and 258/14.	506.480
28	2.58	G.T.S. O B.M. on top of milestone No. 256 on W. side of J. B. Ry. line.	522.714
29	2.02	G.T.S. O B.M. on top of milestone No. 254 on W. side of J. B. Ry. line.	502.316
30	0.52	B.O.M. at centre of S. edge of platform of home signal lever of Kavas railway station.	501.132
31	0.03	G.T.S. O B.M. (Type B) at Kavas railway station. Interred 2 feet below ground level, 203 feet S. of J. B. Ry. line. The distances and bearings of the surrounding objects are:—SW. corner of station building 265 feet and 330°; telegraph post No. 253/14, 250 feet A.D. 1921	501.558

## Bench marks falling in Degree Sheet 400

Number in Sheet 400	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 102 (Khanpur to Marwar Pali).</b>	<i>feet</i>
31	(Contd.)	and 276½°. An iron indicating post bearing the inscription G.T.S. B.M. stands 6 feet S. of the bench mark. 6 Ft.	501.558
32	1.52	B.O.M. on top of milestone No. 252 on W. side of J. B. Ry. line.	525.185
33	1.01	B.O.M. on top of milestone No. 251 on W. side of J. B. Ry. line.	518.276
34	1.01	B.O.M. on top of milestone No. 250 on W. side of J. B. Ry. line.	515.428
35	1.00	B.O.M. on top of milestone No. 249 on W. side of J. B. Ry. line.	509.189
36	1.01	B.O.M. on top of milestone No. 248 on W. side of J. B. Ry. line.	507.880
37	1.01	B.O.M. on top of milestone No. 247 on W. side of J. B. Ry. line.	516.684
38	0.05	G.T.S. on N. end of platform of weighing machine of Baniya Sanda Dhora railway station. B.M.	503.774
39	1.05	G.T.S. at Baniya Sanda Dhora railway station. B.M. (Type B) Interred 2 feet below ground level, 200 feet N. of centre of main-line rails. The distances and bearings of the surrounding objects are:— milestone No. 246, 258 feet and 230°; NW. corner of station building 250 feet and 185°; telegraph post No. 245/28, 337 feet and 150°. An indicating rail-post bearing the inscription G.T.S. B.M. stands 6 feet N. of the bench mark. 6 Ft.	499.228
40	0.68	G.T.S. on centre of W. retaining wall of NW. abutment of railway bridge No. 88 between telegraph posts Nos. 245/7 and 245/8. B.M.	514.607
41	1.02	G.T.S. on E. end of NE. abutment of railway bridge No. 37 near telegraph post No. 244/8. B.M.	517.894

Bench marks falling in Degree Sheet 400

Number in Sheet 400	Distance from preceding B.M. unless otherwise stated	Description of bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 102 (Khanpur to Marwar Pali).</b>	<i>feet</i>
42	1-30	cov. on top of milestone No. 243 on N. side of J. B. Ry. line.	518-801
43	2-02	cov. on top of milestone No. 241 on N. side of J. B. Ry. line.	518-556
44	1-01	cov. on top of milestone No. 240 on N. side of J. B. Ry. line.	516-352
45	1-02	cov. on top of milestone No. 239 on N. side of J. B. Ry. line.	507-712
46	1-05	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">                     G.T.                      500                      A.D. 1921                 </div> <div>                     at Baitu railway station. Interred 2 feet                      (Fyr. B) below ground level, 300 feet N. of centre                      of main-line rails. The distances and bear-                      ings of the surrounding objects are:—NW.                      corner of rest-house 198 feet and 182<math>^{\circ}</math>; centre of station                      building 389 feet and 186<math>^{\circ}</math>; telegraph post No. 237/23,                      441 feet and 207<math>^{\circ}</math>. An iron indicating post bearing the                      inscription "B.M." stands 6 feet N. of the bench mark.                 </div> </div>	505-019
47	0-07	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">                     G.T.                      0                      c.v.                 </div> <div>                     on flooring of veranda of railway rest-house,                      Baitu.                 </div> </div>	509-158
48	0-09	cov. on top of milestone No. 237 on N. side of J. B. Ry. line.	506-510
49	1-01	cov. on top of milestone No. 236 on N. side of J. B. Ry. line.	498-243
50	2-02	cov. on top of milestone No. 233 on N. side of J. B. Ry. line.	471-845
51	1-01	cov. on top of milestone No. 232 on N. side of J. B. Ry. line.	453-911
52	0-63	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">                     G.T.                      0                      c.v.                 </div> <div>                     on platform at base of up-distant signal of Bhi-                      marhai railway station.                 </div> </div>	458-479
53	0-60	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">                     G.T.                      0                      c.v.                 </div> <div>                     at N. end of platform of weighing machine of Bhi-                      marhai railway station.                 </div> </div>	452-579

## Bench marks falling in Degree Sheet 400



Number in Sheet 400	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 102 (Khanpur to Marwar Pali).</b>	<i>feet</i>
54	0.04	G.T.S. □ (Type B) at Bhimarlai railway station. Interred about 2 feet below ground level, 200 feet from centre of main-line rails. The distances and bearings of the surrounding objects are:—NE. corner of coolies' quarters 298½ feet and 148°; NW. corner of station building 250 feet and 178°; telegraph post No. 230/20, 343½ feet and 207½°. An iron indicating post bearing the inscription B.M. stands 6 feet G.T.S. 6 Ft. NNW. of the bench mark.	448.458
55	1.80	B.O.M. on top of milestone No. 229 on N. side of J. B. Ry. line.	428.978
56	1.00	B.O.M. on top of milestone No. 228 on N. side of J. B. Ry. line.	408.409
57	1.00	B.O.M. on top of milestone No. 227 on N. side of J. B. Ry. line.	396.216
58	1.02	B.O.M. on top of milestone No. 226 on N. side of J. B. Ry. line.	388.188
59	1.29	† on top of rail fixed in a masonry platform on S. side of J. B. Ry. line between telegraph posts Nos. 224/17 and 224/18.	390.316
60	0.71	G.T.S. B.M. on platform at base of up-distant signal of Gole railway station.	365.947
61	0.58	B.O.M. at N. end of platform of home signal lever of Gole railway station.	368.621
62	0.05	G.T.S. □ (Type B) at Gole railway station. Interred 1½ feet below ground level, 200 feet from centre of main-line rails. The distances and bearings of the surrounding objects are:—NW. corner of menials' quarters 328 feet and 202°; telegraph post No. 228/12, 319 feet and 222°; NE. corner of station master's house 405 feet and 175°. An iron indicating post bearing the inscription B.M. stands 6 feet N. of the bench mark. G.T.S. 6 Ft.	359.271

Bench marks falling in Degree Sheet 400

Number in Sheet 400	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 150 (Kotri to Barmer).	feet
63	0.77 [from B.M. 55 10 K]	G.T.S. on stone on middle pier, at its N. end, of railway B.M. bridge No. 69, near telegraph post No. 292/13 from Kuchāwan Road.	689.854
64	1.21	G.T.S. on stone on middle pier, at its S. end, of railway B.M. bridge No. 68, between telegraph posts Nos. 291/6 and 291/7 from Kuchāwan Road.	722.876
65	1.27	+ on top of iron rail embedded in a block of concrete, 8½ feet N. of centre of main-line rails, 59 feet W. of milestone No. 290 from Kuchāwan Road. A rail-post No. 52 stands 1 foot E. of the bench mark.	730.681
66	0.53	G.T.S. on stone on middle pier, at its S. end, of railway B.M. bridge No. 67, near telegraph post No. 289/12 from Kuchāwan Road.	710.959
67	1.06	G.T.S. on stone on middle pier, at its S. end, of railway B.M. bridge No. 65, between telegraph posts Nos. 288/9 and 288/10 from Kuchāwan Road.	705.429
68	0.81	G.T.S. on stone on E. abutment, near its S. end, about B.M. 3 feet below rail level, of railway bridge No. 64, near telegraph post No. 287/15 from Kuchāwan Road.	710.448
69	1.26	G.T.S. on stone on 2nd pier from W., at its N. end, of B.M. railway bridge No. 63, between telegraph posts Nos. 286/8 and 286/9 from Kuchāwan Road.	678.553
70	1.34	G.T.S. on stone at base of W. home signal of Khadeen B.M. railway station, opposite telegraph post No. 284/25 from Kuchāwan Road.	716.661
71	0.79	G.T.S. on stone at base of E. distant signal of Khadeen B.M. railway station, near telegraph post No. 284/5 from Kuchāwan Road.	724.740
72	2.05	+ on top of iron rail embedded in a block of concrete, 8½ feet S. of centre of main-line rails, near telegraph post No. 282/4 from Kuchāwan Road.	734.197



## Bench marks falling in Degree Sheet 400

Number in Sheet 400	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	<i>miles</i>	<b>Main-Line 150 (Kotri to Barmer).</b>	<i>feet</i>
73	1.05	B.O.M. (Type C) on rock in situ at S. side of a conical stone hillock 127½ feet N. of centre of main-line rails, 162 feet N. of telegraph post No. 281/3 from Kuchāwan Road and about ¼ mile N. of Puro village and is protected by a hollow masonry pillar, bearing the inscription <sup>G.T. Survey,</sup> B.O.M. the height of which above Upper Mark the bench mark is 0.945 feet.	745.192
74	0.51	B.O.M. on stone on 1st pier from W., at its S. end, of railway bridge No. 60, near telegraph post No. 280/15 from Kuchāwan Road.	740.730
75	1.42	B.O.M. on stone on W. parapet, at its S. end, of railway bridge No. 59, near telegraph post No. 279/4 from Kuchāwan Road.	764.486
76	1.07	B.O.M. on stone at N. plinth, 8½ feet W. of centre of entrance arch of Jasai railway station building.	772.979
77 PP	0.08	G.T.S.  (Type B) at Jasai railway station. Interred 171 feet NE. of station building and 3 feet below ground level. The distances and bearings of the surrounding objects are:—NW. corner of station building 177 feet and 245°; NE. corner of same 165 feet and 240°; centre of main-line rails 102 feet S. and milestone No. 278 from Kuchāwan Road 861 feet and 120°. A rail-post with an iron plate bearing G.T.S. letters B.M. stands 4 feet N. of the bench mark. 6 Ft.	768.261
		<i>Note:—The foundation is in sandy soil and the nearest railway lines are about 50 feet distant.</i>	
78	0.17	G.T.S.  on stone on 2nd pier from W., at its S. end, of bridge No. 56, between telegraph posts Nos. 277/22 and 277/23 from Kuchāwan Road and near E. home signal of Jasai railway station.	769.065
79	1.20	+ on top of iron rail embedded in a block of concrete, 8½ feet N. of centre of main-line rails and 50 feet N. of telegraph post No. 276/18 from Kuchāwan Road.	727.588

## Bench marks falling in Degree Sheet 400

Number in Sheet 400	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
	miles	Main-Line 150 (Kotri to Barmer).	feet
80	1.21	G.T.S. O B.M. on stone on S. parapet, near its E. end, of railway bridge No. 54, between telegraph posts Nos. 275/12 and 275/13 from Kuchāwan Road.	690.032
81	1.38	G.T.S. O B.M. on stone on N. parapet, at about its middle, of railway bridge No. 53, between telegraph posts Nos. 274/4 and 274/5 from Kuchāwan Road.	657.216
82	1.90	G.T.S. O B.M. on stone on E. abutment, near its N. end, 1½ feet below rail level, of railway bridge opposite telegraph post No. 272/6 from Kuchāwan Road.	702.114
83	1.19	G.T.S. O B.M. on stone at base of E. home signal of Ati Malāni railway station, near milestone No. 271 from Kuchāwan Road.	731.962
84	0.73	G.T.S. O B.M. on stone on N. parapet, at about its middle, of railway bridge No. 49, between telegraph posts Nos. 270/8 and 270/9 from Kuchāwan Road.	737.154
85	0.76	G.T.S. O B.M. on stone on S. parapet, at about its middle, of railway bridge No. 47, near telegraph post No. 269/14 from Kuchāwan Road.	723.897
23rr	1.57	G.T.S. O B.M. (Type C) on rock in situ on N. side of the railway lines at S. foot of Dola dungri (hill), about ¾ mile SW. of Barmer town and at N. edge of <i>kachcha</i> road to Jaisalmer. The distances and bearings of the surrounding objects are:—E. top of Kāri dungri (hill), about ¼ mile SE. and 117°, telegraph post No. 267/25 from Kuchāwan Road 177 feet and 141°; W. top of Kāri dungri (hill) about ¼ mile S. and 165°; centre of main-line rails 139 feet 6 inches S. and milestone No. 268 from Kuchāwan Road 122 feet and 170°. It is protected by a hollow masonry pillar bearing the inscription G.T. Survey, Upper Mark the top surface of which vertically above the bench mark is 1.306 feet. A rail-post with an iron plate bearing G.T.S. letters B.M. stands 6 feet N. of the bench mark. 6 Ft.	675.758β
Note:—From this point emanates a branch-line to Standard Bench Mark, Barmer.			

## Bench marks falling in Degree Sheet 400

Number in Sheet 400	Distance from preceding B.M. unless otherwise stated	Description of Bench marks	Height above Mean Sea-Level
86rr	miles 2.15	<p align="center"><b>Main-Line 150 (Kotri to Barmer).</b></p> <p>Top of concrete monolith (no inscription) of Standard Bench Mark (Minor Type) at Barmer. (Primary Mark). Situated in SE. corner of compound of the court-house, Barmer. It bears 190 feet and 269° and 182 feet and 254° from NE. and SE. corners respectively of the court-house, Barmer. Consists of a circular copper bolt fixed on top of concrete monolith, 1 foot square at base and 3 feet high, the upper 3 inches being dressed to the form of a frustum of a pyramid terminating in a smooth square of about 3-inch side. The monolith rests on bed of concrete 5 feet square and 3 feet deep, the upper surface of the monolith being 1 foot above ground level. It is surrounded by a masonry wall about 5 feet square (outside), 1 foot thick and 2½ feet high. It includes three supplementary marks two of which are on N. and S. sides of the monolith consisting of hard stone prisms, 8 inches long and 3 inches square, their smooth tops flush with the surface of the concrete bed, and the third a stout iron bolt 1-inch square and 8 inches long built horizontally into the N. masonry wall projecting about 2 inches out of it. The inner enclosure being filled in with rubble to a height of about 6 inches above the top surface of the monolith and the rest with earth.</p> <p><i>Note:—The foundation is in firm soil and the main road is about 300 feet distant.</i></p>	feet 663.378
87	0.00	Top of stone prism (no inscription) on N. side of the monolith of Standard Bench mark (Minor Type) at Barmer. (Supplementary Mark).	662.491
88	0.00	Top of stone prism (no inscription) on S. side of the monolith of Standard Bench Mark (Minor Type) at Barmer. (Supplementary Mark).	662.491
89	0.00	Iron bolt (no inscription) let into the N. masonry wall of Standard Bench Mark (Minor Type) at Barmer. (Supplementary Mark).	663.407

INDEX TO GEOGRAPHICAL NAMES MENTIONED IN THE LEVELLING PAMPHLET  
FOR SHEET No. 40.

Name of Place	Page	Bench mark number	Officials in whose charge the bench marks are
Akal ...	95		
Ali Bahār <i>kachahri wāh</i> ...	27		
Ali <i>wāh</i> ...	26		
Allāh Dino Gāda ...	72		
Allāhdino Sānd ...	51		
Amri ...	17		
Arain Road railway station ...	6		
Arbāb Sumār ...	69		
Ati Malāni ...	121		
Aungar ...	83, 35		
Bāgarji railway station...	5		
Bagh ...	75		
Baitu ...	117	B.M. 46/40 O	The District Manager, Western District, Jodhpur Railway, Jodhpur.
Bāndhi ...	21	B.M. 203/40 B	The Executive Engineer, Nasrat Canal District, Nawābshāh.
Baniya Sanda Dhora ...	116	B.M. 39/40 O	The District Manager, Western District, Jodhpur Railway, Jodhpur.
Baraham Sar ...	92		
Barmer ...	115, 121	B.M. 23/40 O	The District Manager, Western District, Jodhpur Railway, Jodhpur.
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